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The Physiology of the Circulation. A Course of Lectures delivered at the College of Physicians and Surgeons, New York, in the Fall Term of 1859. By JOHN C. DALTON, JR., M.D., Professor of Physiology and Microscopic Anatomy.

LECTURE VII.

(SEPTEMBER 30.)

Capillary Circulation—Structure and Arrangement of the Capillaries—Varieties in Different Organs—Movement of Liquids through Narrow Tubes—Variations of Rapidity with Different Liquids—Experiments—Physical Constitution of the Blood—Movement of Blood in the Capillaries—Equalization of Pressure—Amount of Force requisite for Capillary Circulation—Experiments—Velocity of Blood in Vascular System—Rapidity of the Entire Circulation—Experiment—Peculiarities of Circulation in Different Parts—Inosculation of Arteries—In Mesentery—In Hands and Feet—In Head—Arterial Plexuses—Pulsation of Veins—Portal Circulation—Communication of Portal System with Vena Cava.

GENTLEMEN—We have seen that the blood moves through the vessels of the living body, subject to a certain pressure; and that this pressure varies in character in different parts of the circulatory system. In the veins it is irregular and fluctuating; in the heart it is

intermittent; in the arteries it is wavy and pulsatile. But notwithstanding these differences, the pressure is continuous, to a certain degree, throughout the vascular system, and is incessantly communicated from one set of vessels to another.

We now come to the third great division of the vascular system, viz., the capillaries. Let us see what conditions influence the flow of blood through these vessels.

The capillaries, you are aware, stand as intermediate channels between the arteries and the veins. All the blood, as a general thing, passing from the arterial to the venous system, must go through these vessels. The principal peculiarities of the structure and arrangement of the capillaries are:

1st. That they are very small, (varying in diameter from 1-6000 to 1-2000 of an inch); 2nd, that they are exceedingly numerous; and 3d, that they inosculate with each other so freely and abundantly as to form a plexus or network, called the "capillary plexus." All these peculiarities, of course, influence the movement of the blood in passing through their channels.

But the arrangement of the capillary vessels varies considerably in different organs. In the areolar tissue, for example, the meshes of the plexus are irregular in shape, but about equal to each other in size. They are represented in this drawing, taken from the web of the frog's foot. In the adipose tissue, you observe, the vessels are comparatively scanty, and inosculate, between the adipose vesicles, by only a few branches. In the villi of the intestine, again, they are excessively abundant, and the meshes are close and crowded. In the liver, also, the capillary network in each lobule is so abundant as to leave but very little space between the adjacent vessels. Here is a vascular tuft from the placenta, in which the vessels, you see, are in the form of ramifying twisted loops. In the kidney, again, there are tufts of convoluted capillary vessels in the Malpighian capsules, and, besides, an ordinary network interposed between the uriniferous tubules. Nearly every organ in the body may be distinguished, in this way, by some peculiarity in the arrangement of its capillary vessels.

Now, in order to understand the movement of the blood in the capillary vessels, we must first study the *physical conditions of a liquid passing through narrow tubes.* The importance of these conditions has been fully shown by the experiments of M. Poisseuille and others. For when a liquid is made to flow through tubes of small diameter, its movement is very much influenced by the constitution of the liquid, and the substance of which the tubes are composed. There is always

some adhesion between the liquid and the tube in which it is contained; and the smaller the tube, the greater the extent of contact between it and the liquid, in proportion to the quantity of liquid passing through. In other words, the *physical relation*, existing between the liquid and the surface of the tube which contains it, has a great deal to do with the ease or difficulty of its passage. If the liquid be made to flow through a large tube, this influence may be nearly, or quite, imperceptible; but if the same quantity flow through a small tube, the contact of surface will be so greatly increased as to produce a very important effect.

There is a very simple apparatus which will show the effect of which I am speaking. I have here two upright cylindrical jars, containing distilled water. Near the bottom of each is an opening, provided with a narrow glass tube, bent at right angles, through which the liquid contained in the jar may escape. On removing the stoppers at the upper end of the jars, the water immediately begins to run out through the narrow tubes; and you can judge of the rapidity with which it escapes, by watching the level of the fluid, as it sinks in the cylindrical vessel.

In this case, you see that the water runs out through both tubes with the same rapidity, and that both jars are emptied at the same moment.

I will now fill one of the jars again with water, and pour into the other an equal quantity of dilute alcohol. On allowing both liquids to run out, you see that the water escapes much more rapidly than the alcohol, and that the second jar is still nearly half full when the first is already empty.

This is not because the alcoholic mixture is lighter than the water, and so exerts less pressure on the current in the tube; for pure alcohol runs away less slowly than the mixture of alcohol and water, though of course its density is still less.

I will now replace the mixture of alcohol and water in the second jar, with an equal quantity of ether. You see, the ether runs away more rapidly even than the water, and escapes more than twice as fast as the dilute alcohol.

On the other hand, if I place in one of the jars some defibrinated blood, it flows, you observe, with great difficulty, and runs only in drops, or in a very sluggish and interrupted stream. The adhesion of the blood to the surface of the glass is so great that it can only flow out very slowly from the extremity of the tube.

In trying different liquids, with these jars, I have found that the

same quantities of liquid were discharged through the glass tubes in the following times:

A quantity of	water	was discharged in	5 minutes.
" "	ether	" $3\frac{3}{4}$	"
" "	saturated solution nitrate of potass	" $5\frac{1}{4}$	"
" "	" " chloride of sodium	" $6\frac{1}{3}$	"
" "	alcohol	" 7	"
" "	alcohol and water, (equal parts,)	" 8	"
" "	defibrinated blood	" 15	"

You see then, gentlemen, that, in studying the movement of the circulating fluid, it is of the greatest importance to take into consideration both the physical constitution of the blood itself, and that of the lining membrane of the vessels which contain it. Now, the blood, as you know, is a complex fluid, consisting, in about equal proportions, of blood-globules and plasma. The globules are semi-fluid, flexible, yielding bodies, composed mostly of an organic substance, similar in its nature to albumen. The fluid plasma is also distinguished by containing albuminous matter as its most abundant ingredient. The entire blood, therefore, has a peculiar, soft, lubricating consistency, which allows the globules suspended in it to move with the greatest facility.

On the other hand, the lining membrane of the vessels is excessively smooth and polished, and approximates in consistency to that of the blood itself. The circulating fluid, therefore, passes through the vessels with an easy and rapid flow, and with but slight resistance from mechanical adhesion.

Now, let us see what are the peculiarities of the movement of the blood, as it passes through the vessels of the capillary system.

On examining, by the microscope, any transparent and vascular tissue, such as the web of the frog's foot, we find that the capillary vessels cross and interlace with each other in a thousand different directions, so that the blood is infiltrated, or disseminated, so to speak, through the tissues, and comes in contact with every part of their substance. We find, moreover, that the current of the blood in the capillaries is perfectly uniform and continuous. There is no pulsation in its movement, and no contraction or dilatation of the vessels. The different streams divide and reunite with each other at all points, and the red globules of the blood may be seen to glide rapidly through the narrow channels of the vascular plexus.

There is no mechanical impulse, then, visible in this part of the circulation, which should disturb the motion of the fluids. The blood

seems to pass independently through the capillaries, from the arteries on the one hand, to the veins on the other.

What is the force to which this steady movement of the blood is to be attributed? What causes it to penetrate through the vascular network in this manner, and discharge itself constantly into the venous system?

You remember, gentlemen, that the pulsation of the arteries becomes altered and modified from the heart outward. This pulsation, in the neighborhood of the heart, is brusque and sudden, like the action of the ventricle itself. But, as the blood passes outward, the elasticity of the arterial walls gradually replaces the heart's impulse, and the flow of blood becomes equalized and continuous. The farther the current passes from the heart, therefore, the less it is intermittent and pulsatile, and the more it becomes steady and uniform in character; for the intermittent pressure of the heart's action is incessantly converted into the steady pressure of the arterial walls.

The blood, accordingly, is delivered from the arteries into the capillaries, under this equable and continuous pressure. We are not surprised, then, to find that the flow of the blood through the capillaries is constantly and absolutely uniform. There is no difference felt, at this part of the circulatory system, between the contraction and relaxation of the ventricles of the heart; for the force of the ventricular contraction has been dispersed and dissipated in the arterial system, and is returned again, at the time of relaxation, by the elastic reaction of the vessels.

Now, the pressure thus developed, in the arterial system, is sufficient to force the blood through the capillary plexus, and carry it onward to the veins.

This fact has been fully demonstrated by the experiments of Dr. Sharpey, of London, and various other physiologists. They are performed by injecting the vessels of an animal with the aid of a syringe, so constructed as to measure the amount of pressure employed.

I have here, you observe, a syringe which fits into a nozzle with two orifices. Each orifice of the nozzle is provided with a strong flexible tube, a few inches in length, and one of these tubes is connected with the brass mouth-piece of a cardiometer, while the other is left free. Now, when I fill the syringe with water, and forcibly inject the tubes, closing the open end with my fingers, you see that the mercury rises in the cardiometer. The rise of the mercury is in proportion to the pressure exerted by the syringe, and the resistance at the other end of the tube. But as soon as I let go the end of the tube,

and allow the water to flow out freely, the mercury, you observe, instantly falls again in the cardiometer.

When this instrument is to be employed for testing the force necessary for the capillary circulation, the free end of the flexible tube is attached to an artery by a brass armature, and the vessels of the part are then injected with defibrinated blood, until the injected fluid returns freely by the corresponding vein. The rise of the mercury in the cardiometer will then show the exact pressure required, to make the blood pass through the capillaries, and into the venous system.

It is a necessary precaution, however, before trying the experiment, to inject the vessels of the part freely with defibrinated blood, from a common syringe, immediately after the death of the animal; otherwise, the blood would coagulate in the capillaries, and thus interfere with the success of the experiment. In this way, Dr. Sharpey found, that when the free end of the tube was attached to the mesenteric artery of the dog, a pressure of 90 millimetres of mercury caused the blood to pass through the capillaries of the intestine and of the liver; and that under a pressure of 130 millimetres it flowed in a full stream from the divided extremity of the vena cava.

Poisseuille had already discovered that a pressure of 143 millimetres was sufficient to force the serum of the blood through the capillaries of the kidney.

I have done the same experiment, with defibrinated blood, upon the vessels of the lower extremity, by placing the end of the tube in connection with the femoral artery. Under a pressure of 120 millimetres the blood returned readily from the capillaries of the limb; and under a pressure of 130 millimetres, it ran, in a full stream, from the divided extremity of the femoral vein.

The blood can be made to pass, therefore, through the capillary vessels by a force equal to the weight of 130 or 140 millimetres of mercury. But we have already seen that the pressure upon the blood in the arterial system is equal to 150 millimetres of mercury; and that it often rises to 160 or 170 millimetres. It is, accordingly, under this pressure, rendered equable and uniform by the arterial walls, that the blood moves steadily and continuously through the capillary vessels.

Beside, the blood is not altogether relieved from the influence of elasticity, after it has left the arteries. For the capillaries themselves are elastic, notwithstanding the delicate texture of their walls; and even the tissues of the organs which they traverse possess, in many instances, a considerable share of elasticity, owing to the minute elastic fibres which are scattered through their substance. These elastic

fibres are found in considerable quantity in the lungs, the spleen, the skin, the lobulated glands, and more or less in the mucous membranes. They are abundant, of course, in the fibrous tissues of the extremities, in the fasciæ, the tendons, and the intermuscular substance.

In the experiment of injecting the vessels of the lower extremity with defibrinated blood, if the injection be stopped, the blood does not instantly cease flowing from the extremity of the femoral vein, but continues for a short time, until the elasticity of the intervening parts is exhausted.

I have observed the same thing even in the liver. If the end of a water-pipe be inserted into the portal vein, and the liver injected with water under the pressure of a hydrant, the liquid will distend the vessels of the organ, and pass out by the hepatic veins. But if the portal vein be suddenly tied or compressed, so as to shut off the pressure from behind, the stream will continue to run, for several seconds afterward, from the hepatic vein, owing to the reaction of the organ itself upon the fluid contained in its vessels.

We must remember, also, that, as a general rule, the capillaries do not suffer any backward pressure from the venous system. On the contrary, as soon as the blood has been delivered into the veins, it is hurried onward toward the heart by the compression of the muscles and the action of the venous valves. The right side of the heart itself continues the same process, by its regular contractions, and by the action of its own valvular apparatus; so that the blood is constantly lifted away from the capillaries, by the muscular action of the surrounding parts.

I have shown you, furthermore, in a former lecture, how the natural movements of respiration tend to draw the blood inward from the venous system, and collect it toward the cavity of the chest.

We see, then, what are the mechanical influences under which the blood moves through the continuous round of the circulation. The heart, by its alternating contractions and relaxations, and by the backward play of its valves, continually urges the blood forward into the arterial system. The arteries, by their dilatable and elastic walls, convert the cardiac pulsations into a uniform and steady pressure. Under this pressure, the blood passes through the capillary vessels; and it is then carried backward to the heart through the veins, assisted by the action of the muscles and the respiratory movements of the chest.

The next point of interest in this connection is the *velocity* of the blood in these different parts of the circulatory system. This velocity

has been measured and estimated in various ways. Volkmann contrived a very ingenious apparatus for the arterial system, by which he found that the velocity of the blood in the larger arteries was about twelve inches per second. In the veins it is thought to be considerably less than this, viz., from six to eight inches per second. But in the capillaries its rate of movement is slower still; not more than one-thirtieth of an inch per second, according to the most probable estimates.

We can see this difference in the velocity of the blood perfectly well in examining the circulation by the microscope in a transparent membrane. In the arteries, even to their minutest ramifications, the current moves with excessive rapidity. The red globules are hurried along in the centre of the stream, while between them and the walls of the vessel there is a clear space, occupied by the fluid plasma and a few straggling white globules. In the smaller veins, on the other hand, the column of blood can be seen flowing away more slowly, though still with considerable rapidity.

But in the capillaries, the currents move in such a way that we can distinguish the individual globules. Sometimes they pass along in columns of two or three; sometimes they follow each other one by one, or in single file. Even here you can see that the red globules of the blood move more rapidly than the white, and often pass them in the same capillary vessel. The whole of the blood, however, is delayed for a time in the capillary plexus, and is then brought into proximate contact with the neighboring tissues. But this time is in reality very short; for the capillary vessels almost immediately unite with each other, and deliver the blood into the commencement of the venous system.

Consequently, there is very little distance intervening betwen the termination of the arteries and the commencement of the veins. The arteries divide and subdivide, till they reach the ultimate divisions of the organ to which they are distributed. Then they break up at once into capillaries, which immediately unite again into a small vein corresponding with the last arterial ramification. Thus, each intestinal villus has its own minute artery and vein, though it measures only 1-70th of an inch in width. Each acinus of the liver has its own capillary plexus, so that the distance from the termination of the portal veins to the commencement of the hepatic vein is not more than 1-25th of an inch. It will only require, therefore, a little over one second for the blood to pass through the entire capillary circulation

of the liver, since it penetrates the capillary plexus of all the acini at the same time.

This rapidity of the blood's passage from the arteries to the veins can be very finely seen in examining the circulation in the *frog's lung*, under the microscope. We can see there that each air-cell is surrounded by small branches of the pulmonary artery, and covered with an abundant capillary plexus, derived from the interlobular arteries. The blood is seen pouring from the small arteries into the circumference of the capillary plexus. But about the centre of the air-cell it is immediately collected by a pulmonary vein, and carried away toward the left side of the heart.

The actual passage of the blood, therefore, through the capillary system, is rapid, though its rate of movewent in these vessels is comparatively slow.

This brings us, gentlemen, to a very curious and interesting point in the history of the circulatory function; that is, the *rapidity of the entire circulation throughout the vascular system.* How much time is required for the blood to pass through the entire round of the circulatory apparatus, so as to return again to its original starting-point?

The experiments performed in regard to this subject have led to the most striking results. They show how much more rapid are the processes of nutrition and circulation in the living body than we should be led to believe *à priori.* For the investigations of Poisseuille, Hering, and Blake, all agree in this particular, and show that the time required for a complete circulation through both arterial and venous systems is not more than about twenty-five or thirty seconds.

The experiments were first performed by injecting into the jugular vein of a large animal some substance which could be easily recognized by chemical tests, such as nitrate of baryta, or ferrocyanide of potassium. At the same time the animal was bled from the opposite jugular vein by a small opening; and from twenty-five to thirty seconds after the commencement of the injection, the blood, drawn from the opposite jugular, contained traces of the substance injected.

By extending these investigations to different animals, it was found that the duration of the circulatory movement varied, to some extent, with the size and species. In the larger quadrupeds, as a general rule, it was longer; in the smaller the time required was less.

In the horse, the mean duration was 28 seconds.
" dog " " " 15 "
" goat " " " 13 "
" fox " " " 12½ "
" rabbit " " " 7 "

Now, when these results were first published, it was very difficult to believe that the circulation was really so rapid as they would make it appear. It was thought that the saline matter, which was injected, "traveled faster than the blood;" that it became "diffused" through the circulating fluid; that it transuded through dividing membranes; or passed round to the point at which it was detected, by some short and irregular route.

But none of these explanations have ever been found to be correct. They are all really more improbable than the fact which they are intended to explain. The physical diffusion of liquids does not take place with anything like the rapidity manifested by the circulation; and there is no other route so likely to give passage to the injected fluid, as the blood-vessels and the movement of the blood itself. Beside, the first experiments of Poisseuille and others have not been invalidated since, in any essential particular. It was found, it is true, that certain other substances, injected at the same time with the saline matter, might hasten or retard the circulation to a certain degree. But these variations were not very marked, and never exceeded the limits of from eighteen to forty-five seconds.

Here is a full-grown dog, upon which I will now do a similar experiment, by injecting into the blood a solution of ferrocyanide of potassium. This salt, you remember, is recognized by instantly striking a deep-blue color, when brought into contact with a persalt of iron.

The animal was etherized an hour or two ago, and the external jugular vein was at that time dissected out, on each side of the neck, so that it is now readily exposed. I will now make an opening in the vein of the left side, and withdraw a few drachms of blood, which is to be set aside in a capsule for examination. I have here, also, a solution containing ten grains of ferrocyanide of potassium in two drachms of water, which I will inject into the left jugular vein by a glass syringe. The injection, you perceive, is made slowly, in order to avoid disturbing the pulmonary and cardiac circulations. The injection is now finished; and the animal does not show any sign of discomfort.

I now immediately uncover the jugular vein of the right side, and making an opening in it, draw off a small quantity of blood.

Here, then, we have two specimens of blood: one from the left jugular vein immediately before the injection, the other from the right jugular immediately afterward. They are both treated with an excess of sulphate of soda to coagulate the coloring matter, and then boiled over a spirit-lamp, with a little water. On throwing the coagulated mass upon a filter, the filtered fluid in each case comes through clear, transparent, and nearly colorless.

I will now treat both solutions by the addition of a little perchloride of iron. In the first, you observe, no effect is produced. In the socond, a distinct blue color immediately appears, showing the presence of ferrocyanide of potassium.

In that short space of time, therefore, the salt injected into the vein had passed, with the venous blood, down to the right cavities of the heart, through the pulmonary artery and the capillaries of the lungs, had returned to the left side of the heart, passed out by the aorta and carotid artery, penetrated the capillaries of the head and neck, and had returned part way to the chest by the right jugular vein.

There is no doubt that the blood itself makes the same circuit in very nearly the same interval of time.

From this circumstance, we can understand how certain poisonous subtances exert their action so rapidly, when introduced directly into the circulation. *Strychnine*, for example, has a specific action upon the spinal cord. It induces in that organ an excessive irritability, and this causes spasmodic contraction of the voluntary muscles. If introduced into the venous system, it is immediately carried to the heart, passes through the pulmonary circulation, returns to the left ventricle, as sent out with the arterial blood, arrives at the spinal cord, and produces its specific effects in the short space of sixteen seconds. If poisons are introduced into the alimentary canal, they require a longer time to produce their effects, owing to the delay required for absorption; but once received into the circulation, they are distributed with great rapidity throughout the vascular system, and are thus brought in contact with the organs upon which they act.

You can very easily see, however, that the blood does not pass everywhere through the capillary circulation, and return to the heart from all parts of the body, in precisely the same time. On the contrary, the distance of the organs from the heart, and the arrangement of their vessels, will modify, to some extent, the time required for the return of the circulating fluid.

This leads us to the study of another topic connected with our present subject, viz., the *variations of the circulation in different parts of the body.*

Many of these variations depend on the anatomical structure of the parts, or of the vessels which supply them. The arteries, for example, as a general rule, divide and separate from each other, in passing to the various organs, but do not inosculate. There are certain parts, however, in which the arteries are distinguished by a very free and

abundant inosculation. The mesenteric arteries, in particular, divide into branches which almost immediately unite with each other again, in the form of arches. In this plate, you see the arrangement of these vascular inosculations. From the convexities of the arches, are given off lateral branches, which again unite with each other, forming a second set of arterial loops; and so on, until the intestine is finally supplied with their ultimate ramifications; so that from three to five sets of vascular loops are formed in the mesentery, the inosculating branches becoming smaller and more numerous as they approach the border of the intestine.

This arrangement provides for the regular supply of blood to that part of the alimentary canal. For the intestine moves and changes its position during the digestive process. Different portions of the gut are liable to overlap and compress the mesenteric arteries, while the peristaltic motion is going on; and the abundant inosculation of these vessels, accordingly, prevents the stagnation of the blood, and secures the continuance of the intestinal circulation.

A similar peculiarity is seen in the palm of the hand and the sole of the foot. The palmar and plantar arches are formed by the union of the two principal arteries of the hand and foot, and give off, from their convexities, the branches which supply the parts below. This arrangement is required by the frequent motion of the bones and the contraction of the muscles in their neighborhood.

In the head there is, as you remember, a very remarkable arterial communication at the base of the brain, known as the *Circle of Willis*. The internal carotids unite with each other in front, by a transverse inosculation, and with the basilar artery behind by lateral branches; while the basilar artery itself is formed by the union of the right and left vertebrals. Thus the brain is supplied by four large arteries, all freely communicating with each other; and if either of them should happen to be obstructed by the movements of the head and neck, or by accidental pressure from without, the cerebral substance will still continue to be supplied with blood. It is this which makes it possible to do the operation of ligature upon the common carotid artery, without seriously disturbing the cerebral circulation.

Now, these inosculations are nearly constant in their occurrence, in all the higher animals, as well as in man. But beside them, there are some instances in which the arteries, in certain parts of the body, divide into a great many branches, which afterward unite with each other, so as to form a kind of arterial network, or plexus, which is known by the name of the *rete mirabile*. Such a plexus is found in the

cranial cavity of the sheep, and other ruminating animals. It is supplied by the internal carotid artery, which breaks up into a mass of small inosculating vessels, situated on the two sides of the sella turcica. These vessels again unite into the trunk of the internal carotid, which then finally divides to form the circle of Willis.

In the *cat*, there is a rete mirabile in the track of the external carotid, just behind the condyle of the lower jaw. In the *sloths*, there are similar plexuses, connected with the arteries of the limbs. In the *whales* and the *porpoises*, they are developed in great abundance, in the cavity of the chest, along the sides of the spinal column.

The effect of these arterial divisions and inosculations is, of course, to moderate and equalize more completely the shock of the heart's impulse. For by such a contrivance the extent of vascular surface is increased, in proportion to the quantity of blood which the arteries contain. Therefore, the movement of the blood, after passing through an arterial plexus, must be more uniform and continuous than before, and less likely to injure a delicate organ by the shock of the cardiac pulsations.

This is probably, in great measure, the function of the rete mirabile. In the ruminating animals, for example, while grazing, the head is held for a long time, in a dependant position, and is then more or less liable to congestion. Now, whenever the arteries are over-distended or congested, the shock of the heart's impulse is felt at a greater distance than usual, because the elasticity of the vessels is, for the time, counteracted. But by a multiplication of the vascular surface, its modifying power is, of course, increased, and the circulation through the brain may then go on in its ordinary uniform manner.

What makes it more probable that this should be the main use of such arterial plexuses, is their remarkable development in the diving animals, such as whales, porpoises, and seals. While under water, respiration in these animals is suspended; and we already know that a suspension of respiration induces a general congestion of the arterial system. But by the existence of arterial plexuses in the course of the carotid and intercostal arteries, the brain and spinal cord are protected, in some degree, from the effects of such a congestion, and preserved from the violence of the cardiac pulsations.

Beside these peculiarities in the arterial system, there are others which affect the *veins* in different parts of the body.

In certain cases, for example, the veins are supplied with an abundant layer of muscular fibres, and exhibit a regular pulsation, like that of the heart. This is the case with the venæ cavæ, in the turtle, and in certain other species of reptiles.

Here you see a turtle, in which the anterior part of the shell has been destroyed, showing the heart and adjacent vessels. Notwithstanding that the brain and medulla oblongata have been removed, the cardiac pulsations are still going on. On lifting upward the point of the heart, you see the two venæ cavæ, right and left, which are pulsating regularly, and with a considerable degree of vigor. The contraction of these vessels takes place just before that of the auricles, so that you have here three different organs pulsating, one after the other, in regular order; viz.: 1st, The venæ cavæ; 2d, the auricles; and 3d, the ventricle.

The veins of the bat's wing have also been seen to contract with a regular pulsating movement, independently of the action of the heart.

But there is one part of the venous system which exhibits a still more marked peculiarity, both in its anatomical and physiological relations; that is the *portal system of the abdomen.* Here, the vessels distributed to the stomach, the spleen, the pancreas, and the intestine, unite, as usual, into a single venous trunk, the *portal vein;* but this vein, instead of conveying the blood directly to the heart, penetrates the liver, and there breaks up into a second capillary plexus, which supplies the tissue of the organ, and then terminates in the hepatic vein. In the abdominal circulation, therefore, the blood passes through two successive capillary systems before returning to the heart: first, that of the digestive apparatus; and secondly, that of the liver.

However, we have already seen that the pressure under which the blood circulates in the arteries is sufficient to carry it through both these capillary systems, and to discharge it into the hepatic veins.

A few years ago, Bernard made the discovery that, in some instances, the whole of the portal blood is not compelled to pass through the hepatic circulation, but that a part of it may reach the vena cava by a shorter route. He found that in the horse, for example, there were certain communications between the portal vein and the vena cava, below the liver; and he regarded these inosculations as a means of relieving the hepatic circulation of a portion of the blood, coming from the abdominal organs.

In this preparation, you can see the communications of which I am speaking. It is a portion of the inferior vena cava of the horse, cut off just below the level of the liver. On the outside of the vessel you can see several branches of the portal vein, of considerable size, which ramify in its walls. They have been cut open for a certain part of their course, and, if traced for a short distance farther, they are seen to open, by small orifices, on the internal surface of the vena cava.

By these branches, therefore, a small quantity of the portal blood finds its way directly into the vena cava; though the greater part of it still passes through the capillary vessels of the hepatic tissue.

These are the most striking peculiarities in the form and action of the circulatory apparatus in different regions of the body. But we must remember, at the same time, that the arrangement of the capillary blood-vessels presents distinct varieties in all the different organs and tissues; and there is no doubt, that this difference produces certain peculiarities of the capillary circulation in each, dependent on the length and diameter of the minute vessels, their abundance, and the frequency of their inosculation. All these particulars influence, more or less, the movement of the blood, and give a peculiar character to the local phenomena of *the circulation.*

The Laryngoscope of Prof. Czermak. By HUGO STANGENWALD, M.D.

Read before the New York Medico-Chirurgical College, June 14, 1860.

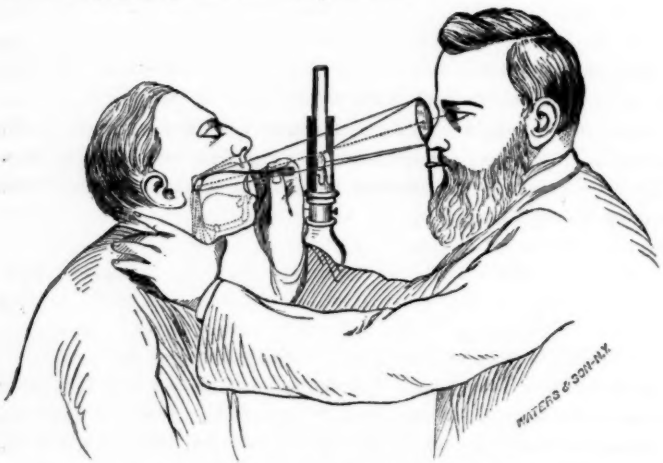
The principal part of this simple and useful instrument consists of a small metallic mirror attached to a long flexible handle, which is introduced into the cavity of the fauces to aid in physiological and pathological investigations.

The flexibility of the handle allows of the adjustment of the mirror under different angles, and in order to prevent the condensation of watery vapor upon the reflecting surface, it is gently heated over a lamp, or dipped into warm water, before it is introduced into the cavity for observation.

The earliest mention of such an instrument for diagnostic purposes, we find as far back as 1840, in a work on "Practical Surgery," by Robt. Liston, Esq. Under the head of "*Ulcerated Glottis,*" Mr. Liston says:

"A view of the parts may be sometimes obtained by means of a speculum—such a glass as is used by dentists on a long stalk—previously dipped into hot water, introduced with its reflecting surface downward, and carried well into the fauces." In November, 1855, M. Garcia published in the *Philosophical Magazine and Journal of*

Science his "Observations on the Human Voice," in which he published a number of very interesting and accurate experiments, demonstrating the formation of the voice and the position of the vocal organs. After him, in the winter of 1857, Dr. John N. Czermak, Professor of Physiology, at the University of Pest, in Hungary, commenced his laryngoscopic investigations, respecting the formation of the Arabian guttural sounds, at the same time repeating the experiments of Garcia; and while thus engaged, became aware of the truly practical importance of the instrument for diagnostic purposes. By an article in the *Vienna Medical Weekly*, of March, 1858, he gave the first impulse, by calling the attention of medical men to the importance of its use, and recommended its adoption as a valuable means of diagnosis. In June of the same year, Dr. Türk, of Vienna, also published his observations on the laryngoscope and its manipulations.



Without entering any further into its history, I shall proceed to describe the second part of the instrument. This consists of a large concave mirror of about 8 to 12 inches focal distance, and three or four inches diameter, arranged on the well-known principle of the ophthalmoscope, which serves to reflect the light of an Argand burner, or gas flame, upon the surface of the small metallic mirror, while the latter is held skillfully and carefully in the cavity of the pharynx under a proper angle. The image is observed through the circular aperture in its centre, thus making the centre of reflection at the same time the central point of observation, and consequently losing a very small amount of light. When it is desirable to have both hands free

for use, the mirror, freely movable by screws in all directions, is attached to a support of soft wood or orris-root, by means of which it may be firmly held between the teeth, thus enabling the operator to use a spatula, probang, or other surgical instrument, with perfect ease. The use of the spatula, however, will but rarely be necessary; for if the patient puts his tongue far enough forward, so as to form a long central cavity on its surface, continuing all the while to breathe naturally, no great difficulty will be experienced in introducing the mirror into the pharynx; while at the same time, by stretching the tongue forward, the epiglottis will be lifted off from the aperture of the glottis, and by pronouncing forcibly certain sounds, the cordæ vocales will be brought into full view.

On pronouncing the long sound a, (as in fate,) these will be seen to open, allowing the inspection of the parts beneath. After becoming a little accustomed and skilled in the use of the hand holding the small steel mirror, so as not to produce any undue pressure on the parts concerned, which might distress the patient, we find no difficulty in bringing into view such parts as the back of the tongue, the epiglottis, the arythenoid cartilages, the true and false vocal cords, the ventriculi Morgagni, and the anterior walls of the larynx and trachea. This would certainly be sufficient inducement to adopt the use of the instrument for diagnosticating pathological changes in those parts; but even more may be done by persevering and skillful efforts.

During my recent European tour, I visited Prof. Czermak at Pest, and was invited by him to examine several patients at a private clinique, suffering from polypi, and other diseases of the vocal organs, which could be seen with surprising clearness and distinctness by means of his laryngoscope. Yet the full capability of the instrument appeared in its true bearing, when he proceeded to exhibit to me on himself, not alone the above-mentioned parts, but also the whole anterior wall of the trachea, and twice during the course of the evening *the bifurcation of the trachea* itself. The latter could, probably, only be attained by great perseverance and careful training, yet goes to show what might be accomplished by the use of this instrument in skillful hands. I had heard of his ability to show the bifurcation of the trachea before I came to Hungary, but had smiled incredulously at the idea of its being possible to see the same in a living individual, yet I went away convinced and perfectly satisfied on the subject.

While repeating the above experiment, it is necessary to remember the anatomical curve of the trachea, and obviate its convexity forward by resting the back firmly against the corner of a sofa or

easy-chair, and bending the head and neck slightly forward. For inspecting the epiglottis and vocal cords merely, the patient is seated in front of the operator, his hands supported upon his knees, the upper part of the body and neck inclining somewhat forward, and the mouth open as wide as possible. The only difficulty in the operation is the amount of skill requisite to manipulate the small mirror, so as to bring the required parts into view, and to get the eye accustomed to the appearance and relative position of the parts when thus shown *reversed*, according to the laws of reflection of light. This, however, is easily acquired after a few experiments. The temperature of the mirror must of course be such as not to cause pain to the patient, and is most conveniently tested by the feeling of the operator before its introduction. When there is great irritability of the parts, several trials may be necessary before we can accomplish our object; yet that sensibility gradually subsides by continued use, and when it is excessive it may be modified by applying previously a solution of nitrate of silver of moderate strength.

I ought also to mention that this instrument, in somewhat modified forms, has been used by Prof. Czermak for examining the posterior wall of the soft palate, the upper wall of the pharynx, (cavum pharyngo-nasale,) and the nasal cavities, as well as the orifices of the Eustachian tubes, all of which I had the pleasure to witness during my visit. The upper part of the larynx and the lower parts of the epiglottis have likewise been examined by means of a very small mirror introduced through the canula of a straight trachea tube, in cases where there existed perfect closure of the glottis from disease. The mirror used for this purpose being necessarily very small, great difficulty was experienced to prevent its cooling too rapidly, till it was found that by covering the reflecting surface by a thin and even layer of a saturated solution of gum-Arabic, this trouble might be avoided for a considerable length of time.

On my return to Paris, M. Charrière requested the use of the present instrument as a pattern, and a number of physicians expressed themselves well satisfied with its performance on my exhibiting the same at the Hôpital des Enfants, and several other hospitals of Paris. And since my return the instrument has been frequently used at the office of Dr. Horace Green, No. 12 Clinton Place, where, in a number of instances, it has verified by the sense of sight, and in a most interesting manner, the rational diagnosis previously made.

Perhaps I should add that Mr. Ford, a skillful instrument-maker of this city, has also perfectly imitated this instrument after the pres-

ent pattern, and is now manufacturing the same at his establishment, No. 85 Fulton Street, for the use of the profession.

NEW YORK, *June* 14, 1860.

Lectures on Displacements of the Uterus. By E. R. PEASLEE, M.D., LL.D., Professor of Obstetrics and Diseases of Women and Children, in the New York Medical College.

LECTURE V.

GENTLEMEN—The displacements of the uterus backward are next to be considered. The first case of this kind recorded in England was observed by Dr. Wm. Hunter, about 100 years since, (1754,) and by him termed retroversion; though the same displacement had previously been described in France, by Desgranges, (1715,) and Gregoire, (1746.)

These first-observed cases all occurred during pregnancy, and it remained unknown, for a long time subsequently, that backward displacements affect the unimpregnated uterus. And when at length the fact was observed, the term retroversion was still applied to all cases. It was, however, an important step in advance to distinguish between retroversion and retroflexion. And we shall find that most cases which occur during pregnancy, or soon after parturition, (or miscarriage,) are, like the case described by Dr. Hunter, properly termed retroversion; while those occurring under other circumstances are quite different in their nature and characters, and are therefore properly known by another term—retroflexion. Dr. Simpson, however, regards these two displacements as differing only in degrees; and Dr. Meigs merely alludes to retroflexion as if an unimportant subject.

Much confusion has resulted from including all antero-posterior displacements of the uterus under the same term—retroversion; and I shall therefore preserve and make prominent the following distinctions in what I have to say on this class of displacements:

1. In *retroflexion*, the *body alone* of the uterus is displaced backward, it being flexed at its junction with the cervix, as Dr. Beattie, several years ago, (1847,) observed. Virchow has explained this, by the fact that the anterior wall of the uterus is thinner, and therefore the uterus is weaker, at this point than elsewhere; while the peritoneum is also at this level reflected from the uterus upon the bladder; thus leaving the whole body unsupported by it above and in front; while the whole of

the cervix is kept in position in front, by its firm attachment to the bladder.

2. In *retroversion* the *whole* uterus falls backward, without any flexion of the body upon the neck.

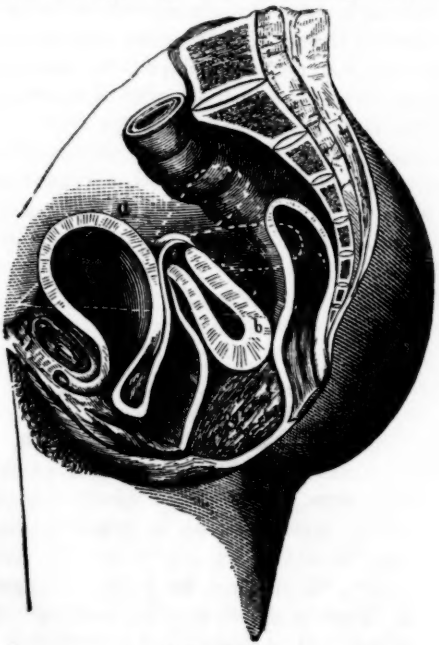
The seat of flexion in case of retroflexion may be, but very rarely is, a little below the junction of the body with the cervix. The latter may also be bent, or curved upon itself, either posteriorly or anteriorly; while the body remains in its normal position. But these are cases of flexions of the cervix uteri; and not to be considered in connection with retroflexion and retroversion.

But to be more explicit, I should say *retroflexion* of the womb is a displacement backward, and more or less downward, of the body of that organ, while the cervix maintains its normal relations; the seat of the flexion being at the junction of the body with the cervix. (Fig. 5.)

(Fig. 5.)

Retroflexion, third degree; or complete posterior reduplication. The body of the uterus is hypertrophied and elongated, and the cervix also elongated, as occurs in some chronic cases. The anterior lip is drawn too long. The dotted lines above indicate the first and second degrees of retroflexion. The distance *a* to *b*, on the straight lines, indicates the amount of elongation of the round ligaments, while the uterus is passing from its natural position to the third degree of retroflexion.

Retroversion is also a displacement of the body backward and downward; but, at the same time, the cervix is displaced upward and forward, so that the relations to each other of the different portions of the longitudinal axis of the uterus remain unchanged. Thus, the uterus is not flexed at all upon itself, but it comes to occupy an antero-posterior position in the pelvis, the fundus pointing backward. (Fig. 6.)



(Fig. 6.)

Retroversion, third degree. Body of uterus somewhat congested. The curved dotted lines indicate the first and second degrees of retroversion. The straight dotted lines as in the preceding figure, modified from Meigs.

We may recognize three degrees of each of these displacements, the *body* of the uterus being in the same position in the same degree of each. In the first degree of each, the body lies between the superior and the middle plane of the pelvis; while in the second degree it lies in or below the middle plane. (See dotted lines in figs. 5 and 6.) In the third degree of retroflexion and retroversion, the body of the uterus falls back into the Douglass *cul-de-sac*, between the posterior wall of the vagina and the rectum. (Fig. 1.) In the third degree of retroflexion, therefore, the uterus is in a state of complete *reduplication*

backward. (Fig. 5.) The neck, also, of the uterus is displaced forward, and in varying degrees in retroversion, but not at all in retroflexion. (Fig. 5.)

These are the general facts in respect to retroflexion and retroversion. But we meet with all possible variations between complete reduplication, the cervix still remaining *in situ*, and the first degree of retroversion, the uterus being still straight, but displaced backward, as before explained. Especially do we meet with these varieties in married women who have not had children. Not seldom, the body of the uterus lies in the Douglass *cul-de-sac*, while the neck points too far forward, but not so as to be in a line with the body. In other words, the uterus is flexed backward in the third degree, though the cervix is in a position intermediate between that of retroflexion and retroversion, as before explained. It is such cases, doubtless, which have led Dr. Simpson to regard retroflexion and retroversion as differing only in degree; a view which, whether we consider their etiology or their treatment, I am unable to adopt. Sometimes we also find the first degree of prolapsus complicated with retroflexion.

In regard to the relative frequency of these two displacements, I should say that retroflexion is by far the more frequent. Retroversion is extremely rare, except as it occurs during pregnancy or after delivery, either premature or at time; though in these circumstances it is more common than retroflexion. In women married or otherwise, who have not borne children, retroflexion is, in my experience, far more common, also, than prolapsus; and decidedly more common than the latter; also, in those who have become mothers. Dr. Meigs states* that 75 per cent. of all the uterine disorders and displacements, that are subject to his inquiries, are cases of retroversion. I have, however, found many cases of retroflexion to one of retroversion; and that both kinds of posterior displacements do not together outnumber the cases of prolapse, with the anterior displacements. I cannot, therefore, with Dr. Meigs, regard retroversion as one of the most common deviations met in practice. (p. 252.)

In explaining the *mechanism* of these displacements, we must again refer to the account of the normal position and the natural supports of the uterus in the first lecture, (p. 164–7,) and assume that the *round ligaments* have become more or less stretched and elongated in the three different degrees. The dotted lines *a*, *b*, in Figs. 5, 6, show how much elongation is necessary in the third degree of both retro-

* Woman and her Diseases, p. 235.

flexion and retroversion. The *broad* ligaments must also have yielded to tension, and have lost their power of affording their usual support, in both kinds of displacements. In simple retroflexion, however, the *utero-rectal* ligaments still maintain their tone; while in retroversion they have become elongated. This also occurs, of course, in those cases of retroflexion in which the cervix is also displaced forward. If prolapsus occurs in connection with retroflexion, the vagina will be found to have lost its tone, and the other conditions mentioned in the third lecture (p. 433) may also obtain.

It will be seen that the first degree of retroversion differs in its mechanism from the second degree of prolapsus, (Lect. 3, p. 433,) merely in the fact that the neck of the uterus points towards and usually above the pubal arch, instead of descending in the vagina.

Causes of Retroflexion and Retroversion.

1. Of *retroflexion*, the *predisposing* causes are, all agencies which stretch or relax the round ligaments; as an habitually distended state of the bladder, and the relaxation occurring in consequence of parturition, (or abortion,) and in some cases of menstruation. It is also doubtless true that a long, much curved, and strong vagina predisposes to the posterior (and the anterior) displacements; as shortness of this canal gives a predisposition to prolapsus. Retroflexion is, therefore, more common in tall women, in whom the uterus is situated high in the pelvis. The *direct* causes are ovarian and other tumors, in the anterior portion of the pelvis; a fibrous tumor in the anterior wall of the uterus, crowding the body backward, or in the posterior wall, dragging it (if not too large) downward by its weight. Tight dressing, or too much weight of apparel, may also directly force the intestines downward, and thus carry the womb backward or forward, according to circumstances—backward, if the round ligaments are already relaxed and stretched by the agencies above mentioned. For though the small intestines normally fall round the uterus and support it on all sides, if it become at all inclined backward they must accumulate in front of it, and thus at once displace it still more posteriorly. An increased weight of the uterus may also become a direct cause of retroflexion, if the ligaments are relaxed, as before explained. In cases of parturition, (or abortion,) this increase of weight coexists with the relaxation of the ligaments already mentioned as accompanying these conditions; and congestion of the uterus and increased weight attend the catamenial function. Some ascribe retroflexion (and retroversion) to congestion, from any cause, of the

posterior wall alone of the uterus, as they do anteflexion and anteversion to that of the anterior wall. Such limited congestion is, however, I think, far more frequently an effect than a cause. Polypus and hypertrophy of the uterus are also to be mentioned here. Habitual constipation may, from the efforts in defecation it necessitates, become an indirect cause of retroflexion. And an habitually loaded state of the sigmoid flexure may directly force the fundus uteri backward to the first degree, and the efforts just mentioned may carry it on to the second or third degree of retroflexion. While, however, these causes generally act very gradually in the production of retroflexion, the following may induce it at once: lifting, leaping, dancing, coughing, vomiting, and above all, rising too soon after parturition.

2. Of *retroversion*, both the predisposing and the direct causes may be the same as those of retroflexion; *i. e.*, the same cause or causes acting in different circumstances may produce sometimes retroflexion, and at others retroversion. I will not, therefore, here repeat the causes just mentioned, but request particular attention to the fact that retroversion in a vast majority of cases occurs during pregnancy, or soon after parturition or abortion. Dr. W. Hunter's case, already alluded to, occurred during the fourth month of gestation. True retroflexion very rarely occurs during pregnancy, though it is not uncommon after abortion or parturition. It is an interesting fact in this connection, that the wood-cuts representing simple retroflexion in some works on this subject, are copied from Mad. Boivin's work; in which the original represented *retroversion* of the *pregnant* uterus in the fourth month of gestation.

The main predisposing cause of retroversion, to be insisted on here, is the increased weight of the pregnant uterus. And this alone may gradually induce this displacement; or a blow on the abdomen, or a fall, or a sudden effort, may at once produce it. The action of a powerful cathartic has also been known to produce it.

All these causes are supposed to act during pregnancy to produce retroversion; and doubtless a great size of the pelvis, a great prominence of the sacro-vertebral angle, and a deeply-curved sacrum, decidedly predispose to it in this condition. But it may also be gradually induced by a pelvic tumor, an enlarged ovary, by prolapsus uteri, ascites, and by extra-uterine pregnancy. Finally, both these displacements may occur at any time after puberty, from the causes above mentioned; and may also be found as the result of congenital malformation at the earliest period after birth.

Symptoms of Retroflexion and Retroversion.—The rational signs of

these displacements are not distinctive, except when they are suddenly induced, as by a fall, or by an effort; but are those common to the various uterine affections mentioned in the first lecture, (p. 168.)

I shall speak first of the signs of retroflexion (and retroversion) when gradually induced, as is the case in a great majority of cases; and then of retroversion, (and retroflexion,) when suddenly brought on, as it most commonly is when occurring during pregnancy.

I. Retroflexion sometimes exists a long time, without producing any decided local symptoms; and is at last detected by one who is familiar with the nervous and other general symptoms to which it has given rise. The intensity of the symptoms, however, depends much on the temperament of the patient; a nervous woman suffering far more from the slightest displacement than one of lymphatic temperament does in the third degree of it. In most cases, no very decided local symptoms are produced by the first degree of retroflexion; but in the socond or third degrees, they become more marked. Menstruation is generally affected, it becoming menorrhagic or dysmenorrhœal. There is profuse leucorrhœa in most cases; and micturition is frequent or painful, or both, though there is no retention of urine, as there is in retroversion during pregnancy. There is a constant aching pain in the back; and uneasiness in the hypogastrium and groins, from tension of the peritoneum. In the third degree of retroflexion there is a feeling of weight or pressure in the rectum or anus, and difficulty in defecation. Pain also extends down the limbs, especially the left, from pressure on the sacral nerves. Not seldom the patient experiences a feeling as if something closes up the rectum like a valve, as soon as an effort is made in defecation; this being due to the pressure of the fundus uteri, in the Douglass *cul-de-sac*. The distress is increased by any considerable effort, and by standing and walking; and during the catamenial period. At length, the general health becomes deranged, and the spirits depressed, as in the other uterine affections. (See Lect. 3, p. 427–9.

Proceeding next to the *physical* signs of retroflexion, we find, by a *per vaginam* examination, that in the third degree of this displacement, the os and cervix are in their natural position; but on pressing the finger behind the cervix, a rather firm and quite tender tumor is felt, and which often seems to be continuous with the cervix above, and may be mistaken for a tumor of the posterior wall of the uterus. It is, however, merely the fundus uteri lodged in the Douglass *cul-de-sac*, and its tenderness is, I should say, generally due to a congestion ensuing upon its displacement; and is not generally resident in one of the ovaries,

as maintained by Mr. Safford Lee. It must also be added, that the ovary is often forced down in this displacement, and may be reached by the finger and distinguished from the uterus itself.

Per rectum, the same tumor is felt projecting against the anterior wall of this canal; and since the finger can be carried thus still higher into the pelvis, it may thus elevate the fundus more, and more completely isolate it from the cervix or from the ovary, as the case may be. I shall show how retroflexion is to be distinguished from a displaced ovary, a fibrous tumor, or an inflammation of the posterior wall, when I come to speak of the diagnosis. In the second degree of retroflexion, the fundus does not fall so low; and in the first it may not be reached at all.

But if doubt still remain, we resort to the *uterine sound*. In its introduction, let the patient lie upon the back, and in such a way that its handle can be depressed to the required extent between the thighs. And this can be effected in private practice by placing the patient across a bed so that the nates come to its edge, while her feet rest upon a stool, and the whole person is covered by a sheet. The instrument, guided by the left index finger, may be passed into the canal of the cervix, in its usual position; *i. e.*, with its concavity upward. But in the third degree of retroflexion, when it arrives at the point of flexion, the instrument is rotated half round and the handle then elevated; when, following the direction of the uterine cavity, it enters the same. Next, the instrument is rotated half round again, and in such a way as to rotate its intra-uterine portion, as nearly as may be, on its own axis, in order to avoid injury to the uterine lining membrane; and finally, by depressing the handle, the body of the uterus is restored to its normal position. And now the tumor, at first reached *per vaginam* and *per rectum*, can no longer be felt. In cases of complete reduplication backward, it may be difficult or impossible to pass the instrument beyond the seat of the flexure, unless the left index finger is used to elevate the fundus *per vaginam*, while the right hand guides the instrument.

I have already stated that the os and cervix uteri are not always in their natural position in retroflexion. The former may be, though it is very rarely, too far behind or in front; though it never points above the arch of the pubis, as is the case in retroversion. The precise relation of the os and cervix are, of course, to be previously ascertained, if we would readily introduce the sound; though, on the other hand, it alone can, in some of these cases, determine where, and how related to the cervix, the body of the uterus is.

I have already alluded to the danger, if there be any, in the use of the uterine sound, (Lect. 1, p. 169.) It is, of course, not to be used to replace the pregnant uterus; nor too soon (within 48 to 72 hours) after the catamenial period; nor if ovaritis be a complication with this displacement. If carefully used, however, it generally produces no decided pain or uneasiness at the time or subsequently. It is merely followed by a hæmorrhage, generally amounting to but a few drops.

The rational signs of *retroversion*, when gradually induced in the *unimpregnated* uterus, are essentially the same as those of retroflexion. The physical signs, however, differ, inasmuch as the os uteri is found presenting forward, above the arch of the pubes; and the cervix is felt, *per vaginam*, to be in a line with the body of the uterus. The anterior wall of the vagina is found to be elongated and tense, while the posterior falls into folds. Sometimes it is difficult to reach the os uteri, on account of its elevation, until the fundus is first elevated, which brings the former somewhat lower down. In such cases, the sound cannot, of course, at first be introduced; and it is usually passed most readily, (after the fundus is elevated,) with its concavity looking downward. The sound, however, is seldom needed to complete the diagnosis of retroversion; but only to replace the womb.

II. I now come to speak of the signs of *retroversion* (and retroflexion) when *suddenly induced;* and especially as occurring during the first four months of pregnancy.

The rational signs of retroversion occurring, as just explained, are usually very urgent and severe. There is a sensation of a sudden falling of the womb, pressure upon the rectum, nausea, vomiting, perhaps syncope, dragging pain in the groins or sacrum, and frequent and painful micturition. Soon, however, complete retention of the urine ensues in retroversion occurring during pregnancy. This is due to the direct pressure of the cervix uteri against the urethra, or, in some cases, the neck of the bladder. A constant dribbling of urine occurs in some cases, and which should always suggest the idea that the bladder is distended; though it has often deceived the medical attendant into the notion that the urine is flowing from the bladder as fast as it is secreted. There is also, in most cases occurring in pregnancy, a forcing effort simulating labor-pains, and threatening abortion. Febrile reaction ensues, and if the bladder is not evacuated it may even burst; unless the urine dribbles away, and the patient is thus saved for the present, to die subsequently, if not relieved, of irritation, inflammation, or sloughing of the bladder. (Dr. Gooch.)

The *physical* signs of retroversion occurring during pregnancy are the same as those of retroversion of the unimpregnated womb mentioned on page 27, but more prominent, since the uterus is larger; and I will not repeat them here. The vagina is found to be elongated and its course changed; it coming forward at its upper part towards the pubes, and not extending backward towards the rectum. Its anterior wall is tense and elongated, while the posterior wall is thrown into folds. The os uteri points towards or above the arch of the pubes; and if the case be one of retroversion in the third degree, it probably cannot be reached with the finger at all.*

I have nothing to add respecting the symptoms of retroflexion suddenly occurring in early pregnancy, except that its occurrence is far more rare than that of retroversion; that its rational symptoms are essentially the same; and that the different physical conditions are at once made out by a vaginal examination.

Diagnosis of Retroflexion and Retroversion.

I. *Retroflexion* (and retroversion) of the *unimpregnated* uterus may be distinguished from the following conditions in the following manner:

1. From *fibrous tumor in the posterior wall of the uterus.* The tumor is, generally, not tender; the fundus uteri is so; but in case of tumor the uterine sound passes in the normal direction.

2. From *inflammation of the posterior wall of the uterus.* The sound determines, as just explained. The cases of this form of inflammation are, I think, very rare.

3. From a *displaced ovary.* The latter is usually more tender, even, if inflamed, than the retroflexed fundus; but the sound at once isolates the latter from the ovary, whether *in situ* or displaced.

4. From an *ovarian tumor.* The sound isolates the uterus, as just explained. If, therefore, an ovarian tumor be complicated with retroflexion, the sound will determine both facts at once.

5. From *inflammation of the areolar tissue between the rectum and vagina*, causing an exudation there. The sound determines.

6. From *organic lesions in either wall of the rectum.* Here again the sound decides.

7. From *early pregnancy.* Very difficult to decide without the use

* The Fig. 31, p. 325, American edition of Churchill's work on Diseases of Women, intended to illustrate "retroflexion and retroversion" of the uterus, very well represents retroversion occurring in the fourth month of pregnancy.

of the sound, since the posterior wall of the uterus develops most rapidly during pregnancy. But as it is a rule *never to use the uterine sound until we have assured ourselves that pregnancy does not exist*, we are to assume the existence of pregnancy and wait for future developments, if the rational signs leave the question of pregnancy doubtful. If, however, we find the usual sympathetic symptoms of pregnancy, (especially arrested menstruation and morning sickness,) in the absence of the rational symptoms of retroflexion, (p. 25,) we may generally make a very positive diagnosis between the two conditions now under comparison.

8. Finally, *retroflexion* is distinguished from *retroversion*, with which it has been confounded by so many authors, by the difference in position of the cervix in the two cases, as explained on pages 25 and 27.

II. The diagnosis of *retroversion* (or retroflexion) of the *pregnant* uterus is usually not difficult. It may, however, be mistaken for the following conditions:

1. Mere *retention of the urine* may lead to suspicions of retroversion; but a vaginal examination in that case shows the uterus *in situ*.

2. From *anteflexion* retroflexion is distinguished by the falling of the fundus uteri backward instead of forward.

3. Retroversion may be mistaken for a *pelvic tumor*. But the latter does not so suddenly cause retention of urine, unless so large that it had previously been detected. There, also, the os and cervix uteri are *in situ*.

4. If retroversion were mistaken for *early pregnancy*, or the contrary, it should be remembered that this condition alone does not give the urgent symptoms of retroversion.

5. Retroversion may be mistaken for *extra-uterine pregnancy;* or the reverse. But the former gives the more urgent symptoms, until the parturient efforts commence in the latter; and in the latter a vaginal examination shows that the uterus is not enlarged, nor the cervix displaced.

6. Finally, retroversion during pregnancy is distinguished from retroflexion in this condition by the less urgency of the symptoms of the latter; especially so far as the bladder is concerned; since the cervix is not thrown forward against that organ or the urethra. Retroflexion during pregnancy is also very much rarer than retroversion, as I have already asserted.

Effects and Complications of Retroflexion and Retroversion.—1. Of retroflexion and retroversion of the non-pregnant uterus. The posterior wall of the uterus is always congested in retroflexion of the third de-

gree, as is the anterior in anteflexion. The congestion is sometimes, however, confined to a small extent of surface, presenting a lobulated sensation to the touch. On the other hand, the entire uterus is sometimes engorged. The cervix is often so, and the os open and swollen, and sometimes, also, ulcerated. Hypertrophy of the womb at length may occur, its whole cavity becoming 3½ to even 4 inches long.

Ovarian irritation also accompanies retroflexion of long standing, and ovaritis is a very common complication. Congestion of the ovaries was found in 9 out of 13 cases by Dr. Rigby. The left ovary is more frequently affected; probably from its nearness to the distended rectum, (Simpson.) The ovaries are also frequently drawn downward. Hæmorrhoids is a very common accompaniment of retroflexion in the third degree; resulting from the direct pressure of the fundus uteri upon the anterior wall of the rectum.

Absence of sexual desire is another not uncommon result of retroflexion; as is also sterility. Retroversion of the unimpregnated uterus is a less frequent cause of sterility, however, than retroflexion, as might be expected. A tendency to abortion is also a result of this displacement.

Adhesions of the uterus to the bladder or rectum, or both, are (rarely) met with in retroflexion. Ovarian tumors sometimes occur, also, as a complication.

2. The effects of *retroversion* of the *pregnant* uterus—retention of urine, constipation, and their secondary consequences—have been detailed under the signs of this displacement. Miscarriage is not seldom a result of it; and sometimes its occurrence alone renders the reposition of the uterus possible, whether this results from adhesions or otherwise.

Prognosis of Retroflexion and Retroversion.—In cases of retroflexion and retroversion of the unimpregnated uterus, we can seldom promise a complete cure—*i. e.*, a permanent restoration of the uterus to its normal position—within any definite period, or without the use of some intra-uterine support. We may, however, confidently expect to relieve all cases, and to remove the symptoms in most; provided the patient is in circumstances implicitly to comply with our directions. The treatment is, however, more difficult and less certain in its beneficial results than that of prolapsus, unless it be the third degree of the latter.

Our prognosis of a perfect cure should, therefore, be guarded. But if pregnancy supervene a cure may be expected, if appropriate management be resorted to after parturition.

Retroversion in pregnancy is a dangerous condition to both the

fœtus and the mother; and the danger increases the farther gestation is advanced. We may, however, expect to relieve it, and save the patient, at least, if promptly applied to.

The treatment of retroflexion and retroversion will be the subject of the next lecture.

Reports of Surgical Cases. By JOHN O. BRONSON, M.D., Professor of Surgery in the New York Preparatory School of Medicine.

No. I.

REPORT OF TWO CASES OF CYSTOTOMY FOR THE REMOVAL OF CALCULI.

Case 1.—Michael E., æt. sixty, consulted me on the 11th of August, 1859, giving the following history: Although a native of Ireland, he had lived many years in this country, and for the past eight years had been employed in the Rubber Factory at Colchester, Conn., in that department known as the "Varnish-Room," in which turpentine is used in great quantity. After working there a few weeks, his urinary apparatus became deranged. In passing, let me say that he was not alone in suffering this derangement, for all who were employed in that department suffered more or less, and sooner or later were obliged to leave, and find other employment. Most who became affected left in a few days, but Mr. E. maintained his place for this long period of eight years, suffering incessantly. During the last two years of his connection with the manufactory his symptoms were much aggravated, and from time to time, at varying intervals, he passed small calculi, each about the size of a sweet pea, of the uric acid variety. His sufferings became so severe that at last he relinquished his business, and came to this city for relief.

His symptoms indicated the existence of calculi. One symptom, however, which is almost always present under such circumstances, was absent. He never experienced a sudden stoppage of the stream during urination. Nevertheless, the existence of calculi was diagnosticated, although he had consulted several who had told him to the contrary, even after sounding. The sound soon confirmed my diagnosis, and an operation proposed and assented to, and the time fixed therefor on the following Monday.

At the appointed time, in the presence of Dr. H. Guernsey, Dr. R. O. Doremus, Dr. W. B. Bibbins, Dr. E. J. Darken, Dr. A. K. Gardner, Dr. B. L. Budd, and a number of my pupils, I proceeded to perform the usual lateral operation, the patient being under the influence of chloroform.

The incisions were made by means of the scalpel and a button-pointed bistoury. Having removed nine calculi, of the average size of a cherry-stone, and become satisfied that the bladder was entirely evacuated of all foreign bodies, a catheter was placed in the wound, and being released from his position, the patient was removed to his bed, and left to rest.

Reaction took place favorably, and the patient, considering his age and impaired condition, which, together, bespoke an unfavorable prognosis, did remarkably well. His general health improved, and the wound healed kindly, though slowly. Urine began to flow by the urethra about the twelfth day, and in the seventh week the urine flowed entirely by the natural way. Everything looked favorable and gratifying. Under the influence of tonics, his system became strengthened, so that he was up and about. An accident occurred at this time, brought about by the foolish persistence of the patient in keeping the window open at the foot of his bed.

He took cold, and pain gradually appeared within the pelvis, which became of the most severe character, accompanied by chills. In a few days after the pain had reached its acme, pus in very large quantity found its way by the urethra and the wound, laying open the wound to the vesical cavity, giving new egress to the urine. An abscess had formed, I believed, in the prostate gland, and now the condition of the patient was worse than at first. All things, however, progressed favorably for about ten days, when a renewal of the symptoms appeared, more particularly in the chills, and in a few days the right testis suppurated, and discharged its contents through an artificial opening. Again quinine, iron, brandy, and a generous diet brought the patient up, and in a few weeks he was able to sit up. The wound closed in so far that the urine flowed by the natural way. In a short time I had the pleasure of discharging him from under my supervision. This was at the end of the sixteenth week.

On the sixteenth of January, 1860, I was sent for, to find the patient in a condition simulating that in which he was at the time of the formation of the abscess of the prostate. Severe perineal pain and marked symptoms of vesical inflammation. The existence of an abscess was evident, and a day or two demonstrated the formation of a fistula in ano; the abscess at this time having formed lower down. The previous tonic course, accompanied with remedies directed to subdue the inflammation of the bladder, was resorted to. His constitution did not respond to the remedies as formerly, but more tardily. But little improvement was shown, save in the fistula, which had so

far closed as to shut off connection with the bowel. At this juncture of affairs, a consultation with Dr. John O'Reilly was had, on the 13th of February, and a change made in the administration of vesical remedies, by giving gin in the form of milk punches. For a few days some improvement was perceptible. In fact, by the first of March the fistula was nearly closed, and the vesical symptoms subsided to a very great extent.

On the fourth of March a renewal of all the symptoms appeared. The right testis again suppurated, and continued, after discharging its contents, to pour forth large quantities of pus. This drain upon his system, and the irritation produced by the vesical pain, the poor man could not long bear. Gradually yielding to the assault, on the 23d of March, 1860, he succumbed, having, for the two days previous, lost all mental and physical power.

Thus ended a case which, at the end of the sixteenth week, was successful, but which, surrounded with the effects of age and poverty, was finally fatal. I say poverty, for the deprivation to which he was subjected thereby had a telling effect on the result.

Case 2.—Lawrence Lannon, æt. fifty-seven, native of Ireland, came under my care on the 14th of April, 1860. For a period of eighteen months he had suffered symptoms of vesical calculus. On the 18th of April, at my clinic at the Preparatory School of Medicine, assisted by my colleague, Dr. C. A. Budd, and in the presence of the class, I operated, as in the previous case, by the lateral mode, with scalpel and bistoury, the patient being under the influence of chloroform. No difficulty was experienced, the bladder being reached readily and speedily. Although the stone gave a sharp click when struck by the sound, when reached it was found to be of much softer material than was supposed. The stone was of the phosphatic variety, covered by a thin, more solid envelope, which accounted for the sound given upon concussion with the steel. The concretion was of the size of a hen's egg, and was broken in several pieces during the extraction. The bladder was thoroughly cleansed, the patient aroused from his anæsthetic state, and being placed in a coach, was carried to quarters prepared for him about half a mile distant. He was placed in bed, and left to rest, without a catheter in the wound. It was found necessary to give most generous diet and strong tonic treatment. On the fourth day after the operation, erysipelas appeared in the wounded parts, which, however, was quickly subdued by astringent lotions and a continuance of the quinine, &c.

On the 9th of May, just three weeks from the operation, the pa-

tient found it necessary to go into the country, or, rather, found it quite impossible to remain in town, and although unwilling, I was obliged to submit, and allow his departure to New Jersey, a short distance from Bull's Ferry. On the 30th of May, just six weeks from the operation, and three weeks after he left my care, he presented himself cured, the urine flowing entirely by the urethra, and his general condition much improved. This result was highly gratifying, considering the unusual circumstances in which he was placed.

Abstracts and Translations from Foreign Journals.—Prepared expressly for the MONTHLY.

THE TRINITY OF CHARLATANISM.

The medical profession of Portugal is taking high ground on the subject of medical charlatanism. The Duke de Saldanha had petitioned the young king in favor of pseudo-medical practitioners, and was met valiantly by Prof. Gomes, physician to the king. Prof. Thos. de Carvalho, in opening the session of the Medical School of Lisbon, selected as his subject The Trinity of Charlatanism—Paracelsus, Mesmer, and Hahnemann.

After an ingenious analysis of the supernatural doctrines of the notorious illuminatus, he says: Paracelsus died because he was human; but Azoth, his familiar demon, the author of his enchantment, did not die, because he was a spirit. But what became of him? Whither did he transmigrate? First, into the hands of Thurneyser, who concealed him in a crystal vase, in the form of a scorpion. But what glorious sword, what crystal vase conceals him now? Who is the modern thaumaturgist that can boast of possession of this precious gift? At the end of the eighteenth century, the hidden principles of Paracelsus found an enthusiastic propagandiste in Mesmer, whose doctrines are still the law of modern magnetizers. The experiments of Volta, the immortal discovery of Galvani, had exalted the imagination. Mesmer assumed then the form of the famous visionary, and, calling the venerable Azoth to aid him in his prestidigitary mystifications, announced the discovery of a new human fluid, analogous to that of Volta and Galvani, possessing wonderful properties and effects, acting at a distance through the agency both of light and sound. The sidereal bodies of Paracelsus barely change their names in the new cabala; the new baptism did not remove the original stain.

Mesmer began his operations at Vienna; but the number of the

incredulous who had known the simple student was too large, and the theatre too contracted for his magnetic prestidigitations. He traveled, and came to Paris. The soil was fertile, and the moment propitious for the miracle-worker. He taught the doctrine to some spirits enthusiastic with the occult sciences, and pretended, in his character of physician, to reveal all diseases, and to cure them by the influence of fluids that he had subjected to his all-powerful will.

The curative art, he said, will reach the utmost limits of perfection through animal magnetism. It should, then, be substituted for the science that had cost two thousand years of consecutive efforts, repeated observations and painful experiences, and which should be exposed to an inexorable ostracism. All that had exercised the greatest intellects, that the greatest spirits of all time had irradiated on the pages of history, should be condemned, as error and mental aberration. We do not know but that Mesmer, like Paracelsus, burned the books of ancient science, so that he could better demonstrate the uselessness of the observations they contained. In this point of view, magnetism is one of the grandest pieces of bold effrontery in modern charlatanism.

The orator described the practices of Mesmer, and his different methods of exalting the imagination of the credulous. He approximated, in the extravagant luxury of his clothing, the habits of Paracelsus, who was accustomed to array himself in scarlet cloth. The indecent and scandalous scenes which resulted from the magnetic operations of the impudent charlatan may also have approximated those of Paracelsus. But Mesmer repeated, mentally, the motto of the Garter: *Honi soit qui mal y pense.*

Despite the high protection of Marie-Antoinette and d'Eslon, public indignation was so excited against the audacious magnetizer, that he was forced to quit Paris, leaving to his disciples the continuation of his work. Like the adepts of Paracelsus, who practiced secretly his occult medicine, these new energumens undertook to convert the world to the magic of the new illuminati. What is left, at present, simply serves to divert the public at their marvelous *seances*, or in the theatres, by prestidigitation, attracting the parterre with the phenomena of second sight. Yet Herrman, in his exhibitions before the Sultan and the Emperor of Russia, was superior to all the magnetizers in the world.

The invention of Mesmer, although provoked by the discoveries of Volta and Galvani, had its root in the doctrines of Paracelsus. The sidereal bodies of the illuminatus of Einsiedeln possessed the same

properties as the magnetic fluid, and produced like effects. Concentration of the will was sufficient for Mesmer in the development of the astonishing phenomena which were observed in his cabinet, just as inward contemplation, in the silence of the senses and inactivity of the faculties, sufficed to give full plenitude of action to the sidereal bodies. By their wonderful and supernatural influence, the stars were not only in relation with sublunary creatures, but, through their agency, the past would be divulged, the present made known, and the future revealed. Magnetism is not less worthy of admiration. Somnambulists understand the dead languages which they have never learned; they describe, as minutely as the most skillful and wise anatomist, the human organization; they see what is passing at many leagues distant, and divine, as the first sorcerer, future events. The fluid may be reflected from a mirror or any other substance, and all animate and inanimate bodies—a tree or a stone—are susceptible of developing it through the will of the magnetizer, and communicating its influence to bodies which are brought into contact with it. The fluid fills and controls the whole universe, just as the Paracelsian bodies.

Contemporaneous with Mesmer, born also in Germany, the country of mysticism, a physician who failed to acquire a fortune by the translation of some distinguished works, and not seeing patients flocking to his office, desired to erect a new doctrine on the ruins of the old. He denied the dogmas which were established for twenty centuries, as the best means of obtaining notoriety, and even established his new system on this negation.

The two absurd principles, *similia similibus curantur*, and the increased power of drugs in direct proportion with the attenuation of the dose, necessarily involved mysterious consequences and assimilated madness. The clear, manifest, evident, positive action of medicines, confirmed by thousands of experiments, and certified by so many wise physicians who had ennobled and illustrated traditional medicine, this action was contested, denied, and substituted by a secret influence arising from homœopathic preparation. Liquids are diluted until they remain concealed under the most subtle analysis; solids are reduced and attenuated until they are imponderable and unrecognizable; yet, with each dilution, with each attenuation of the substance, its therapeutic action becomes more active, energetic, and efficacious. The more the substance disappears, the more the activity it possesses is developed, grows, and multiplies its effects. If it were possible to conceive of total, complete annihilation of matter, then the active power it contained would arise to its maximum. Without renewing the trial of

homœopathy, which has been solemnly tried and condemned, it may be seen what a negation it is of *physics*, as well as of *medicine*.

Like Paracelsus and Mesmer, Hahnemann traveled and came to Paris, the great centre of intelligence, the luminous focus of the arts and sciences, which seems destined both to consecrate great geniuses, the exceptional spirits that preside over the progress of civilization, and to celebrate the ephemeral reign of every form of charlatanism.

Traditional medicine saw the surging of the new error, heard the murmurs against itself; judged it, and suffered it to pass. * * * The proofs that the pseudo-doctrine is derived from the cabala, and has some points of contact with mesmerism, are furnished by the Organon—the Gospel of Homœopathy. Hahnemann pretended that he could so isolate the medicative virtues of medical substances, that he had a glimpse of the possibility of suppressing all medicines and substituting for them the mesmeric action of the strong will of a healthy, robust man, producing in the sick symptoms similar to the disease from which they were suffering.

The orator concludes as follows: "Charlatanism has always resulted from madness or dishonesty. Let us pity the fools and punish the rogues. We should be inexorable on this point. Intelligence is granted in different proportions, and all eyes cannot behold the luminous splendor of science; but honesty is one and the same with all. * * We notice, with pain, some degenerate students of our schools, forgetful of their instructions and the example furnished by their teachers, employing the diploma they have received to cover over frauds and scientific trickery. Our profession excludes us from any intercourse with these. The practice of medicine is a *priesthood;* mere money-changers are not received in its temples. * * * The life of a physician is a continual trial. He has not a moment at his command, because he is devoted to the relief and consolation of his race. He should hoard up treasures of charity, resignation, and patience, to dispense them prodigally. If he passes years in acquiring a knowledge of a laborious and often repugnant science; if he consumes his youth in the schools, and his back over books; if he passes days and nights at the bedside and in anatomical amphitheatres, he owes all the fruit of these painful and conscientious labors to the humanity to which he is sacrificed. If this vocation does not please him, rather let him retire, than prostitute himself in the dark regions of charlatanism."

These are brave words from our Portuguese brother.—*L'Union Médicale.*

L. H. S.

HYPNOTISM.

This novelty—last of those which have served to occupy the attention of the versatile Parisian—proves to be but a reproduction of the quasi-catalepsy or anæsthesia of mesmeric times. We recollect the very singular book of Dr. Esdaille on the effects of mesmerism in India, in which he described a number of capital and bloody operations performed on patients, under the so-called mesmeric influence, without the slightest manifestation of pain. We were satisfied then that the proper way to meet his theory was *not* by discountenancing these cases. In what is called Hypnotism, we have a resurrection of these phenomena divested of any troublesome theory. Dr. Vigla, in the *Journal de Pharmacie et de Chemie*, gives a short account of the present knowledge of this subject. The process by which the person is thrown in the somnambulic condition is as follows: a bright object (a silver lancet-case, for example,) is held between the thumb and fingers of the left hand, at a distance from 20 to 40 centimetres (8 to 16 inches) from the eyes, so that the eyes and eyelids must be somewhat strained in order to see it. The eyes and the attention of the patient are to be solely fixed on this object. In this way Azam, (Bordeaux,) Broca, Follin, Velpeau, and other surgeons, have experimented, with the view of testing the phenomena produced by hypnotism. As to the best mode of operating, Azam thus writes in the *Gazette des Hôpitaux:*

The patient should be placed on a low chair, the head thrown back. All noise should be avoided, as well as any preoccupation of the mind. It is not to be doubted but the presence of many assistants and the exaggerated fears as to a painful operation are the worst conditions for success. The body being placed in a comfortable position, and the limbs relaxed, I place a bright object before the eyes, in such a position as to produce a kind of converging strabismus of such a character that the axes of the eyes may intersect, so to speak, the arch of the eyebrows, and yet the object be seen distinctly. The *continued* convergence of the eyes is an indispensable condition. After a short time, varying from one minute and a half to four or five minutes, the pupils, which at first were contracted, dilate or contract by a species of oscillatory movement; the countenance loses all expression, the eyelids wink, the respiration is accelerated, and the patient exhibits indications, as it were, of involuntary deglutition. The pulse is then reduced, the eyes generally closed, and now catalepsy is established. The anæsthetic period commences here; but it must be understood that this has not been produced in all those on whom the

experiments have been performed—a large number are refractory to hypnotism. Females, particularly the young and susceptible, are the most readily placed in this condition, although it must also be stated that Azam has succeeded in hypnotizing a female, sixty-three years old.

Dr. Braid, who has employed this method in affections the most dissimilar, in which he pretends that he was successful, endeavored to make it useful as a means of moderating or even suppressing pain in surgical operations. He relates that teeth were extracted without pain in six cases that were hypnotized; that he opened an abscess for a lady, under this influence, without the least expression of pain; and that he performed tenotomy in an adult case without any indication of suffering. Results so satisfactory are of a character to encourage surgeons. An operation (the opening of an abscess) was performed by Follin, with but a slight cry from the patient.

Such is hypnotism. Can its scientific destiny be predicted? The first difficulty consists in its applicability to only a small number of individuals, and even in those the anæsthetic stage of hypnotism is not always attained; and what is of still greater importance, according to Azam, it is liable to bring on attacks in cases of epileptic or hysterical persons. What remains, then, to be said of its application as an anæsthetic method in surgical operations? Nothing more than can be said of magnetism, (which is very little,) and it may be, indeed, less. Hypnotism will serve to divert the Parisian public, to teach them how the monks of Mount Athos procured cataleptic ecstasies by gazing on the umbilicus, to recall the famous tub of Mesmer, the mirror of Cagliostro, and other facts, more or less marvelous, which seem to belong to the same order of experimentation. It will, however, be advantageous to examine by clear sunlight the facts which were attributed, by ignorance or jugglery, to a mysterious, *soi-disant* magnetic influence, and a serious investigation by physiologists may thus be provoked of these singular phenomena.—*Jour. de Pharmacie, &c.* L. H. S.

M. Guerry, (from the *Gazette Médicale de Paris,*) in a note to the Academy of Sciences, directs attention to the fact that more than two centuries since the effects of hypnotism were called the phenomena of *actinobolism*, or *irradiation*. The following passage clearly proves this statement; it will be found in Father Kircher's ARS MAGNA LUCIS ET UMBRÆ, Rome, 1646:

Experimentum Mirabile.—Gallinam pedibus vinctam in pavimentum quodpiam depone: quæ primo quidem se captivam sentiens, alarum succussione, totius corporis motu, vincula sibi injecta excutere omnibus modis laborabit; sed irrito tandem conatu de evasione, veluti desperabunda, ad quietem se componens victoris de arbitrio sistet. Quieta

igitur sic manente gallina, ab oculo ejusdem in ipso pavimento lineam rectam creta vel alio quovis coloris genere quæ chordæ figuram referat duces. Deinde eam compedibus solutam relinques. Dico quod gallina, quantum vis vinculis soluta, *minime tamen avolatura sit*, etiam si ad avolandum instimulaveris, (p. 154, 155.)

This same experiment is also noticed by Daniel Schwentner, of Nuremberg, in his *Deliciæ Physico-Mathematicæ*.

Dr. E. Rossi, private physician to Prince Halim Pacha, speaks of Hypnotism, as practiced in Egypt. In this country, sacred to tradition, where what is done to-day is the same that has been done for forty ages, there is a class of persons whose profession is that of *Mandeb*. The effects produced, despised at present as charlatanism, are the same as those described by Dr. Braid, or rather hypnotism, in their hands, constitute the first link in the chain of phenomena which closes with magnetic somnambulism. Their method of operation is as follows: they generally use a perfectly white plate of the best earthenware. This answers to Braid's luminous object. In the middle of the plate they make, with pen and ink, two triangles intersecting each other, and fill the space inclosed by this geometric figure with cabalistic words; this is done probably so as to concentrate the attention on one spot. Then, to increase the brightness of the surface of the plate, they pour on it a small quantity of oil. They generally select a young subject for their experiments, and cause him to look fixedly on the centre of the two triangles. In four or five minutes the following effects are noticed: he begins to see a black point in the middle of the plate, which soon enlarges, changes its form, and is transformed into different appearances, which flit before the patient. At this stage of the process, the subject often acquires a somnambulistic lucidity as extraordinary as that of those who have been magnetized.

There are, however, some of the *Cheks*, who, in a more simple manner, without resorting to geometric figures and cabalistic words, produce quite perfectly hypnotism and somnambulism, after the manner of Braid, by simply fixing the gaze of the subject on a glass bowl; and as they do not possess a Charrière to make fine apparatus, they employ one of the bowls which answer for lamps, oil being poured in them.

* * * I wish to claim for antiquity priority of discovery of hypnotism.

Giraud Teulon, in his review of Figuier's History of the Marvelous, mentions the Omphalopsychists of India, as also using hypnotism; the ecstasy was produced by gazing intently on the navel. The effects of fixedness of gaze will explain many of the wonderful phenomena which

are read with praiseworthy incredulity by the present generation, as recorded on the pages of history. L. H. S.

CATALEPTIC SLEEP IN FOWLS.

Hypnotism is the hobby which the French journals are riding with the greatest possible delight. Dr. Michea is not satisfied with the experiments of Azam and Broca on man, but has carried on a series of experiments on cocks and hens. The experiments are not new, even in this country, although the dignified name of hypnotism has never been applied to the agency inducing the cataleptic condition. The mode of operating consists simply in placing the fowl upon a board, (Michea used one of a *green* color,) pushing the head down so that the end of the bill should touch the board, then drawing a line with some Spanish whiting from the end of the bill. "The fowl, which before the operation made resistance with its feet, and moved its eyes freely, at the end of two minutes began to have a fixedness of gaze, to wink its eyes, to open its bill slightly; then gradually sinking down, it fell on its right side. Its head was then stuck with a needle, as well as the body and feet, but there was no reactionary movement, and not the slightest cry. The head was turned to the right and to the left; the neck, which had sunken between its wings, was lengthened, and each part retained the position given it. . . . . At the end of three minutes the fowl spontaneously broke out of its somnolence." The author finds nearly similar results in every case.

The question arises, Why is it that hypnotism is produced in man when the eyes are fixed on some brilliant object, while in animals, especially the Gallinaceæ, the result is obtained when the head is placed in the axis of a line drawn with Spanish whiting. The first idea which presents itself to the mind is that of interference from molestation of vision; and vertigo has been regarded as the point of departure of all the phenomena constituting hypnotism, since it is really so closely connected with spontaneous catalepsy as to constitute often the initial phenomenon. According to Lamettrie, the vertigo, so frequent in persons who amuse themselves in turning round or dancing in a circle, is very different from that to which one is subject on looking at the earth from a very high position. In the second form of vertigo, the fear of falling plays a very important part, while all such psychical element would be absent in the first. Might not fear have some agency in the sleep provoked in cocks and hens? The line drawn on their bills and prolonged on the ground, could it not have

the terrifying effect on these animals that the *eyes* of others possess? For, to say nothing of the stupor that the gaze of a dog produces on the partridge, or that of the toad on the agile weasel, it is asserted that ophidians, from the enormous serpents of America down to the vipers, paralyze batrachians and certain birds; that, by directing their shining eyes on the frog or the nightingale, for example, they plunge these into the most complete state of muscular relaxation; that they fascinate the singing-bird, so that it is made to descend from branch to branch, and finally fall on the ground. However this may be, we know positively that strabismus is indispensable to the production of hypnotism in man, and that it does not seem to be necessary for the manifestation of the same phenomena in animals, at least in the gallinaceæ.

Michea draws the following conclusions:

1. Hypnotism produced in cocks and hens by the bizarre and quasi-cabalistic method that Dr. Braid borrows from the jugglery of Bohemians and mountebanks, was completely manifested in the majority, and incompletely in the generality of the experiments.

2. In the cases of complete hypnotism, the insensibility to punctures and the catalepsy are as evident as in hypnotism produced in man by gazing fixedly on a brilliant object.

3. The catalepsy is very decided in the neck and head; it is less in the feet, and almost nothing in the wings.

4. The slightest puff on the eyes ends instantly, and, as though it were by enchantment, the cataleptic sleep.—*Gazette des Hôpitaux.*

L. H. S.

DIPHTHERIA AND ITS TREATMENT.

The French journals continue to furnish articles on this disease, which has become so fearfully interesting to the profession. We are satisfied that the same disease is not always described, although the same name is used; still, much that is interesting and something that is valuable may be gleaned from the journals. We make a few extracts, that our readers may see how variant the opinions of medical men are on this subject. First, however, we shall present a condensation of some facts connected with the history of the disease from Dr. Michel Peter, of the *Hôpital des Enfants* at Paris: "Diphtheritic affections, more frequent in 1858 than in 1857, have increased in frequency in 1860. A cold and damp season, with abrupt changes of temperature, has increased the number of diphtheritic affections. . . Tracheotomy has furnished, in both sexes, a little more than one-fourth cures, (1 to 3 in boys, and 1 to 3.7 in girls.) The operation

has been constantly unfortunate when practiced at the age of 2 or 2½ years. It rarely affords success at from 3 to 3½ years, but furnishes successful results very often at from 4 to 6 years in girls, and 4–5 years in boys. . . . Diphtheritis kills more by poisoning than suffocation."

Non-inoculability of the Disease.—Dr. Peter has made some bold, and we must say silly, experiments on this subject, by placing the diphtheritic matter on the surface of one of his mucous membranes, or inserting it under the epithelium. In November, 1858, having practiced tracheotomy on a child affected with this disease, a quantity of diphtheritic matter, partly membranous and partly liquid, was thrown on the whole ball of the left eye, a portion of the liquid getting between the lower lid and the eye. He did not remove it immediately by washing, as he wished to test the fact of contagion by immediate contact. Twenty-four hours afterwards no alteration was noticed in the eye, and no inconvenience was experienced. In December, 1858, Dr. Peter took some diphtheritic matter obtained in a case where tracheotomy had been performed by Coulon, and inserted it, with a lancet, on the median line and the lateral portions of the mucous membrane of the lower lip. The first point bled for a few moments, but 24 hours after the inoculation nothing was appreciable, save a slight ecchymotic projection in the middle of the median puncture. In January, 1859, he took some matter obtained from a girl 11 years old, and charging a piece of charpie with it, he coated the tonsils, the palate, and the posterior part of the pharynx with the same. Slight nausea was produced, but the diphtheritic matter was not ejected. He abstained from drinking, so as not to dilute the morbid product. No evil effect resulted. These experiments, however, only prove Trousseau's words: "It is not to be concluded that diphtheria is not transmissible, but only that inoculation is not the means of transmission."

Treatment by Perchloride of Iron.—This treatment, instituted by Dr. Aubrun, is warmly commended by Dr. Duliquier. "From 20 to 25 drops of solution of perchloride of iron is poured into a glass, which is then filled with cold water. The patient is to take a swallow every five, ten, or fifteen minutes—the inky taste is best removed by a few swallows of water. This treatment should be continued for two or three days. During the treatment care must be taken to supply food; milk may be employed, soups, or even meat, if they can masticate it, and also a little pure wine."

Treatment by Iodine.—Dr. Charnaux has only had five deaths in

thirty cases. He covers the parts affected with tincture of iodine, repeating the application hourly. This removes generally the membrane in a few hours, when he alternates the iodine application with a chlorate of potassa gargle, made as follows:

Potassa Chlorat.,	6 grammes.
Aquæ,	180 "

A strong decoction of cinchona is given internally, broths freely, and whatever the appetite may demand.

Treatment by Ice.—Blanc, of Strasburg, employs gargles of cold water 20 to 30 times an hour. Dr. Grand-Boulogne, in Havana, practiced the following plan: The affected parts were cauterized with a mixture of honey and chlorhydric acid applied on lint, and pieces of ice were kept constantly in the mouths of the sick. The sensation of suffocation quickly passes away, and general relief is experienced. From a number of cases treated in this way, he arrives at the two following conclusions: 1. The ice instantly checks the diphtheritic exudation by a local and primitive action; 2. By a secondary or reflex action, it reacts on the nervous system, restoring the whole system to the normal physiological conditions, which are consequently incompatible with the formation of the morbid product constituting diphtheria.

The error underlying all these suggestions is the almost absolute attention paid to the local affection, ignoring, as it were, that which must constitute the most important characteristic of the disease, the poison which is acting on the blood, and thus undermining the very source of life. Nevertheless, some attention must be paid to the local affection, and it is well to examine the different methods proposed by those who have had the best opportunities for observing the disease. All cases of toxæmia are involved in obscurity—each contribution towards the removal of the veil must be hailed as acceptable by the true student of nature. L. H. S.

MYOLETHE—MUSCULAR FORGETFULNESS.

Baron Heurteloup, in the first chapter of his Physiology, thus speaks of a peculiar condition of the muscular system, which produces certain unexplained phenomena: "The muscular system is under the influence of the cerebro-spinal apparatus, and thence contracts in accordance with, or without, volition. Whilst the relations between these two systems of organs are normal, so that nothing interferes with the influence of the brain on the muscles, life proceeds on its way with certainty. But if anything should subvert the tranquil influence of one

of these systems on the other; if the brain, which controls muscular actions, lose, for a longer or shorter time, its freedom of action, the muscular system will be affected by such a condition; its contractions will cease for a time; there will be a sudden interruption of a movement commenced, or a sudden passage from one position to another. Heurteloup calls all the phenomena which result from this interruption, from this suspension of the regulative action of the muscles, by the name of *myolêthes*, from μυς, *muscle*, and ληθη, *forgetfulness*, since they are the result of momentary forgetfulness of the brain to command the muscles to contract. This forgetfulness of the brain is occasioned by a number of causes: intellectual tension, passion, astonishment, fear, rage, chagrin, joy; in fine, by everything calculated to attract the attention strongly.

Entering upon the details, Heurteloup reviews the different systems which constitute our organism; at first the external muscular system, where myolethe is an every-day incident, showing itself in the most familiar acts of life. If we open our mouths when we listen attentively, it is not, as the transcendental physiologists (Richerand among others) had the courage to say, to hear better by allowing the sound direct access to the Eustachian tube; but simply because the jaw falls, and the jaw falls because the brain, being preoccupied, forgets to keep it up. He explains in the same way the popular dictum, on receiving a sudden shock, "*I became powerless*," the helplessness that manifests itself when we are on elevated positions, or by the edge of an abyss; and a host of phenomena which result from the arrest of muscular contraction in consequence of the preoccupation of the brain.

After these external, and somewhat material, proofs of myolethe, Heurteloup studies the more hidden manifestations of this phenomenon in the most delicate organs employed in nutrition, respiration, circulation, the formation of the voice, the use of the different senses, the urinary or generative function, &c. The very simple principle of myolethe furnishes the key or explanation, easy, palpable, and true, of a host of phenomena, whose cause, up to the present time, has remained unperceived or misapprehended, enveloped in impenetrable mystery. It is thus known why we stammer, why fright seems to fasten the feet to the floor, &c. We have the secret of hypochondria, nightmare, lypomania, hallucinations, &c. The following propositions furnish a useful *résumé* of the conclusions arrived at by Heurteloup: 1. If the functions of the organism are executed by the influence of the brain on the contraction of the muscles, these functions are arrested as soon as the preoccupied brain no longer controls these contractions; 2. The

arrest of these contractions is quickly or slowly effected, according to the nature of the cause; it is also ephemeral or permanent: when ephemeral, it may produce serious disorders, according to the functions it intermits; when permanent, it produces chronic diseases or impotencies of organs, of a dangerous character, in proportion with their nearer relation to the brain; 3. A thorough study of myolethe will lead to useful conclusions in natural physiology, hygiene and therapeutics; it seems to be the key to most facts which have heretofore appeared to be at variance with the laws governing the economy.—*Cosmos, Jan.* 27, 1860. L. H. S.

POISONING BY CAMPHOR USED TO PRODUCE ABORTION.

In the number for April, 1859, (p. 290,) we furnished our readers an account of a case of poisoning by camphor, in a man who had employed it in the treatment of urethritis. We now present the report of a case of poisoning from the same agent, resulting in death.

"A woman, aged thirty-six, of a delicate, nervous temperament, the mother of five children, being four months gone in pregnancy, and fearing the effects of this pregnancy, took, on the advice of one of her neighbors, 12 grammes of camphor, at one dose, dissolved in brandy. During the first hours after the dose she only experienced phenomena of intoxication, headache, redness of the face, and a burning sensation about the stomach; eight hours afterwards she began to experience a pain, somewhat severe at first, but which became towards mid-day very intense, occupying the epigastric region, and thence radiating to the loins, and over the whole of the abdomen. There was tenesmus for some hours; heat, and painful sensations recurred at intervals. During the evening and following night there was great anxiety—vomitings, at first the ingesta, then bilious, supervened, and were repeated occasionally; the abdomen became tumefied, painful, and very sensitive under the slightest palpitation; uterine pains increased in intensity.

On the third day a physician was called, who administered some remedies, although without relief. Dr. Fenerly, called on the ninth day, found the features changed, face pale, ghastly, and livid; cheeks hollow; eyes sunken, and tarnished; skin cold, and void of feeling; pulse small, and threadlike; movements of the heart weak, and slow; respiration painful, and voice very weak. She was plunged in a comatose condition. The whole abdomen, especially the epigastrium, was very painful, and incapable of bearing the slightest pressure. In a few hours violent and painful cramps were experienced in the extremities; urine was suppressed for twenty-four hours, and percussion on

the vesical region furnished no indications of the presence of urine in the bladder. There was a slight flow of blood through the vagina, and the *touch* showed that the orifice of the neck of the uterus was slightly open, and very warm. The patient lived three days in this condition, and then died, having had a miscarriage on the evening of her death.—*Bulletin de Thérapeutique.* L. H. S.

CHEMICAL INVESTIGATIONS ON THE ROOT OF THE KAWA, OR AVA.

Gobley has directed the attention of the Pharmaceutical Society of Paris to a species of pepper, called, by Forster, Piper methysticum. It is produced by a vegetable well known, in almost all the isles of the Southern Ocean, under the name of kawa, or ava. Its root, fresh or dry, has been employed, from time immemorial, in the preparation of a drink, which, before the establishment of intimate relations between the peoples of Oceanica and Europe, constituted the favorite beverage of these islands. Being macerated in water, it furnishes, indeed, a liquid which the people of these lands drink with pleasure, because it plunges them into a species of drunkenness or excitement quite peculiar. This root, somewhat large in size, has been described by Forster and Lesson: it is ligneous, light, of a grayish color on the exterior, white, and of a loose, spongy tissue within; its fibres radiate from the centre to the circumference, as is the case with the monocotyledons. Its odor and taste are slightly aromatic; when chewed, it is slightly acrid, astringent, and sialogogue.

Gobley's examination of some specimens, brought home by Dr. O'Rocke, is as follows:

Water,	15
Cellulose,	26
Starch,	49
Methysticine,	1
Acrid and aromatic resin,	2
Extractive matter and gum,	3
Chloride of potassium,	1
Magnesia, silica, alumina, oxide of iron, &c.,	3
	100

The kawa approximates, as will be seen, to pepper in its chemical composition, although it differs in many respects, and, among others, in the special properties belonging to the peculiar principle it contains. It possesses a decided therapeutic action, being one of the most powerful sudorifics known. It also exercises an influence in the cure of catarrhal affections and blennorrhagia.—*Bullet. Gén. de Thérap.*

L. H. S.

COMPOSITION AND PREPARATION OF URATE OF QUININE.

An attempt has been made, by experiments somewhat numerous, to establish the superiority of urate of quinine over the sulphate in the treatment of certain refractory intermittent fevers and different other periodic affections. Although we consider the question as far from being settled, yet we shall furnish the method of preparation of this new salt.

Urate of quinia *(Bulletin Général. de Thérap.)* results from the combinations of ten parts, by weight, of crude quinine with twenty parts of pure crystallized uric acid. Five hundred grammes of distilled water are placed in a beaker on the fire; when the water boils, the crude commercial quinine is added; the ebullition is kept up for ten minutes, and then the pure crystallized uric acid is added in small quantities, taking care to stir the mixture with a spatula; this mixture is kept in a state of ebullition for one hour. Water is added from time to time, to preserve the volume of the mixture; it is afterwards filtered, and the preparation is decanted, and the *marc* is treated again with distilled water, in quantity equal to that first employed. This is caused to boil for twenty minutes, passed through the same filter—the filtrates are united and evaporated to perfect dryness over a gentle heat. There is thus obtained a salt of a fine yellow color, sometimes amorphous, oftener crystallized in very brilliant spangles. Urate of quinine is soluble in boiling, or simply warm, distilled water; also soluble, although less readily, in cold distilled water.

Peraire, the discoverer of this new preparation, has taken pains to vary the formulæ containing urate of quinine, so as to furnish medicinal forms adapted to the most ordinary menstrua. The following are some of the principal formulæ:

For *Pills.*—Quiniæ Urat., q. s.
Pulv. glycyr., q. s.
Fiat massa.—These are to weigh from 5 to 16 centigrammes.

For *Potion.*—℞.—Aquæ gummat., 100 grammes.
Quiniæ urat., 30 centigrammes.
Syrup. (Orgeat,) 30 grammes.

For *Alcoholate.*—℞.—Alcohol, 4 grammes.
Quiniæ urat., 60 centigrammes.
Tinctur. anisi, 4 gtt.
Dose: Ten drops through the day, on sugar.

For *Wine.*—℞.—Vin. alb., 125 grammes.
Quin. urat., 1 gramme.

L. H. S.

FISSURE OF ANUS.

Gaussail, in the *Journal of Medicine*, published at Toulouse, (Feb., 1860,) proposes the following pills, as an adjuvant to the topical treatment of fissure of anus, with the view of rendering the stools less painful. They were used successfully in one case which had persisted fifteen months, but yielded absolutely in twenty days to treatment.

R.—Pulv. aloes,
" gambogiæ, ää, grammes 4.
Antimon. et Potass. tart., " 0.05.
Ol. anisi, " 2.00.
Syr. Simp., q. s.

Fiat massa.—Pills are to be formed weighing just twenty centigrammes. One of these pills is to be taken every evening.

HOARSENESS OF SINGERS, PRODUCED BY FATIGUE, ETC.

The first tenor of the continental opera is accustomed to employ as a remedy for the annoying affection the following treatment: Take, for five or six days, twice a day, as a beverage, from five to six drops of nitric acid in a glass of sugar-water. In case the system should become so accustomed to this medicament that its efficaciousness is diminished, the dose should be increased to ten or eleven drops.

L. H. S.

EFFECTS OF CONICAL PROJECTILES.

Bertherand has been investigating the effects of the new conical ball used in the modern musket, and presents the following as the results of his investigation:

" 1. The point of the conical projectile striking a bone at a spongy part, (the end,) is likely to penetrate without shivering it; but the danger is great when it comes in contact with a compact portion, (diaphysis,) in consequence of the number and size of the fragments it produces. 2. The helicoidal movement of the conical ball tends less to the production of reflection from points of resistance, than the form and conditions of progression of the spheroid. 3. *A priori*, the hole which the conical ball makes should be more contracted. Apart from this difference, which is not very sensible, there is another advantage, in the production of less contusion around the hole. As regards the hole made in escaping, the new projectile affords the worst injury. In fact, the resistance it receives in its passage tends to turn its course, so that on reaching the integument as it escapes, its sharp point is no longer in advance; but a lateral or oblique position being assumed, a large opening is made."—*Gaz. Méd. de l'Algerie.* L. H. S.

INFLUENCE OF HONEY ON HEALTH, BY DR. BUZAIRIES.

The ancient sages considered honey as a sovereign and universal remedy, and the old attributed their great age to its use as an article of food. Among these, may be mentioned Democritus, of Abdera, who reached the age of one hundred and nine years; Anacreon, one hundred and fifteen; Pollio Romulus, over one hundred, &c. Hippocrates, the most celebrated physician of antiquity, recommended honey as a means of prolonging life, and himself attained a very advanced age. The inhabitants of ancient Greece sweetened their wines with honey, and prepared with it a very common beverage known as *mulsum*. Anacreon manifested a well-marked preference for this beverage, and while drinking it he composed the most joyous songs that have come down to us. The wrestlers and athletæ of Greece and Rome never entered the arena without having first eaten a certain quantity of honey. Pythagoras and Democritus lived, we are told, on bread and honey, in the full belief that it was an infallible means of prolonging life and preserving the mind in its full vigor.—*Jour. de Chim. Med.*

S.

MONTHLY SUMMARY OF MEDICAL JOURNALISM.

By O. C. GIBBS, M.D., Frewsburg, N. Y.

Pathology of Tubercle.—In the *American Journal of Medical Sciences* for April, Dr. C. Ellis, of Boston, has an essay upon *Tubercle*. The essay received the Boylston prize, and though the opinions of the author are none of them novel, yet the essay is not without its merit. We shall make a quotation or two, which will embody the most important ideas. Of *tubercle* he says: "It is not a specific exudation. It does not exist as such in the blood. The yellow variety is always the result of metamorphosis—of degeneration." It is altogether probable that it is owing to a "degraded condition of the nutritive material," which differs from that furnished under ordinary circumstances, "not in kind, but in degree of vitality or capacity for organization."

In regard to its connection with inflammation, he says: "Tubercle makes its appearance sometimes with, sometimes without symptoms of inflammation, and, certainly, the recent granulations, in most cases, show no signs of an inflammatory origin: the tissue in their neigh-

borhood is remarkably healthy. If, therefore, they generally or often exist without apparent inflammation, the presence of the latter should rather be regarded as a consequence, and not a cause." We quote the above opinions with pleasure, as they conform with our own idea, expressed several years since.

Those of our readers who have been in receipt of the MONTHLY for the last five years, may remember some remarks of ours in the January issue of this journal for 1856. Speaking of meningeal tuberculosis, we held the following language: "Many have supposed that meningeal inflammation commenced anterior to the deposition of meningeal tubercle. Such suppose the granular deposition to be nothing more nor less than the product of inflammation, and, consequently, tuberculosis the sequence of an inflammatory cause. Some of the first names in the profession, in the full light of our present pathology, have maintained this opinion, of whom may be mentioned Broussais, Alison, Andral, Rainhart, Rokitansky, Gross, &c. Williams, too, claims that tubercles are frequently the product of inflammation. The subject is of the first importance, and I propose here a few arguments in disproof of the opinion of the above-mentioned pathologists. Perhaps there is no fact better established in pathology than that tubercles exist in numberless cases without any evidences of inflammation, either by symptoms, or as shown by anatomical examination. If this be so, then inflammation is not necessary to the production of tubercle; and when it exists in connection with such deposits, it is probable that it is a superinduced consequence, and not a pre-existing cause. It is admitted that tubercles may occur in an organ simultaneous with, or subsequent to, inflammation in the same organ; but even then there is no evidence that there is an existing relation of cause and effect; but it is probable that their coexistence is accidental, or, rather, the subjoined tubercles are an independent coincidence. It is possible that, in persons of a scrofulous diathesis, inflammation may *hasten* the deposition of tubercles; but this is far from justifying the conclusion that such deposits are the *products* of inflammation."

Bearing upon some other points of Dr. Ellis' paper, we should be happy to quote similar ideas from our paper referred to, but our space will not justify great extension. We will, however, make one other quotation. Dr. Ellis states his conclusions in regard to tubercle thus: "*It is altogether probable that it is owing to a 'degraded condition of the nutritive material,' which differs from that furnished under ordinary circumstances, not in kind, but in degree of vitality, or capacity*

for organization." (The italics are his.) This is the prominent idea of Dr. Ellis' prize essay, and now let us see if the idea is altogether new. In our paper previously referred to, and published in 1856, we made the following remark: "It is probable that fibrin, or a substance that is fibrin-like, may result from a retrograde condition of albumen. And it is my opinion, though that opinion may be hastily formed, that this fibrin-like substance, resulting from defective albumen that has failed to accomplish its object in the process of nutrition, is the pabulum of tuberculosis. In other words, *the albuminous material which in the process of nutrition is to form the elements of growth and repair, through some defect in its formative process, is, to a limited extent, incapable of cellular development; and this non-developmental albuminous product becomes the dead, fibrin-like concretion which is denominated tubercle.*"* We fail to perceive the difference between the prize essay opinions of Dr. Ellis, and those expressed by ourself, in an unpretending article, nearly five years ago.

While upon the subject of tubercle, we wish to pay a passing notice to articles in the *Medical and Surgical Reporter.* In the issue of that Journal for April 21st, under the head of "A New Theory of Phthisis," reference is made to a work just issued in London by Dr. Goodwin Tims, and to his opinion that tubercle is the product of "destructive assimilation," retained in the system because of imperfect excretion. In the *Reporter* for May 12th, Dr. E. J. Fountain, of Davenport, Iowa, complains that credit is erroneously given, and affirms that *he* first enunciated this opinion, in the July issue of the *N. Y. Journal of Medicine.* That Dr. Fountain believes his statement true, we will not doubt, but it is, nevertheless, slightly incorrect. Several pathologists, and among them we think we may mention Andral and Gavarret, have considered tubercle only modified fibrin. Because so considered, Simon called it *fibriniform.* Though fibrin was once considered the material from which textures were chiefly nourished, yet, for several years back, several eminent physiologists have regarded fibrin only an excrementitious product. Both the above ideas were fully brought out in our article, to which reference has previously been made, and they do not differ from those advanced by Drs. Tims and Fountain.

Mania à Potu.—In the *N. O. Medical and Surgical Journal* for May, Dr. Warren Stone has a very sensible article upon the above subject. Dr. Stone does not believe that *mania à potu* is caused by a

* AMERICAN MEDICAL MONTHLY, Vol. V., page 6, 1856.

stoppage of the accustomed stimulant, but rather by suppressed excretions and consequent retention of and poisoning by the alcohol imbibed. He advises in accordance with this idea, and we quote a passage or two illustrative of his treatment. "It is plain, under these circumstances, that the indications are to establish the excretions, disgorge the system of the alcoholic poison, and to introduce proper nutriment. The first two are accomplished by one and the same means. The stomach is generally irritable, at least there is frequent vomiting, but it is owing to the accumulation in the stomach of morbid secretion rather than from inflammation, or even irritation; for calomel in small doses, frequently repeated, arrests it with great certainty." He advises calomel, either in full doses or in small doses frequently repeated, if the patient is governable, until 15 or 20 grains are taken. This is to be followed in 8 or 10 hours with "small and repeated doses of saline medicine." These means "promote the excretions, disgorge the stomach and bowels, and clear the system of its alcoholic poison, to its great relief." . . . . "After this process, we should lose no time in introducing nutriment, and for this purpose milk is almost universally applicable; and as the mucous membrane of the stomach seems to be denuded of its epithelium, the addition of lime-water renders it particularly grateful and soothing. Patients in this condition generally loathe animal substances, but milk is almost always grateful to the taste, and is particularly appropriate, for it furnishes the most innocent solid for the bowels, that have been long deprived of their wholesome stimulus." . . . . "In all acute cases, alcoholic stimulants should be withheld, for they act like a poison, and will often bring back the delirium." . . . . "Opium, in all forms, should be prohibited, until the system is relieved thoroughly of its alcohol, and even then I find that it can generally be omitted; and when it can be, the patient recovers sooner and better." Where opium is indicated, he says, "Equal parts of morphia and tart. antimony, given in small and repeated doses, will soon calm the nervous system and induce sleep, without injury to brain or stomach. There is nothing that cools off the heated imagination in these cases like nauseating doses of tart. antimony; and opium in some form may be added, if it is thought necessary."

Our esteemed preceptor, Prof. Jared P. Kirtland, used to speak highly of antimony in these cases, and we have no doubt of its utility in the combination as above.

In favor of his plan of treatment, Prof. Warren Stone says, that of the many cases treated in his Infirmary, during the last ten years, he

does "not recollect of a single death, unless there was some grave complication more important."

Animal Heat.—But few subjects have ever proved more rebellious to a satisfactory elucidation and explanation than the *source of animal heat.* The most eminent physiologists of past, as well as of the present age, have alike exhausted their ingenuity without satisfactory results. Baron Liebig, several years since, gave an explanation that, from its simplicity and plausibility, acquired pretty general favor; a few, however, were not satisfied with his theory, and their objections are likely to demolish it altogether. Prof. Draper asserts, that "in every instance the production of animal heat is due to oxydation taking place in the economy." (Draper's Physiology, p. 182.) But where *oxydation* exists, there exists also *deoxydation*, and the latter is as much a cooling as the former is a heating process. We have not space nor inclination to review the several theories that have been proposed to account for the production of animal heat. It may be known to some of our readers that Prof. Bennett Dowler, of New Orleans, has for many years entertained peculiar views upon this subject. In the *New Orleans Medical and Surgical Journal*, for May, he has an article upon the subject, detailing many experiments performed by himself bearing upon his views.

Prof. Draper affirms that "heat depends on the power of the pulmonary engine," and says, "The absolute temperature will depend on the respiratory condition." Prof. Dowler opposes this idea, believing that animal heat is not dependent upon pulmonary combustion. We think he has the best of the argument. We have not the space to quote his opinions, but will, as concisely as possible, allude to a few of his more important arguments.

On examining the body after death, he finds the lungs lower in temperature than many other portions of the body; and, in many instances, he has found the heat of the body absolutely to rise for a little time after respiration ceases. In pneumonia and consumption, though in the former the office of the lungs is obstructed, and in the latter much of the lung substance may be destroyed, the heat of the body is usually, and perhaps always, above the normal standard. In sun-stroke, the respiratory act is very imperfectly performed, and yet it "is the hottest of all diseases."

Prof. Dowler objects to the nutritive theory of heat, that cold-blooded animals are often voracious eaters, and also, that the temperature of starving animals may be accelerated rather than diminished. This is not altogether a new idea; "the article *Abstinence*, of the

National Cyclopædia, (London, 1847,) enumerates the calorific manifestations of the economy during starvation, as follows: 'During the first two or three days the temperature is natural—subsequently the heat seldom sinks below the natural standard—finally, the skin becomes intensely hot—delirium, coma, &c.'" This is not in accordance with the statement of Dr. Draper, who says, "A starving animal dies of cold;" or that of Carpenter, who says, "Death by *starvation* is really death by *cold*." M. Savigna was once shipwrecked; many of his companions died of starvation, and he barely escaped the same terrible death. He says, and he speaks knowingly, that "*starvation* is accompanied with a *burning heat*."

We have not the space to continue the *Summary* of Prof. Dowler's paper. He was the first, nearly a score of years ago, and when M. Liebig's chemical theory was hailed with acclamations, to affirm "that the blood is *cooled* in the lungs by respiration"

In conclusion, we quote a few passages that show Prof. Dowler's views upon the subject of animal heat: "Calorification, like consciousness, understanding, will, vitality, matter, and mind, is an original endowment, inherent in man's constitution, the immediate cause of which is no more explicable by chemistry than man's color, size, altitude, &c." * * * "Vitalism, (the *vis vitæ*,) or vitality, is self-revealed, self-evident, and no more demonstrable by experiment, testimony or reasoning, than consciousness, mind, matter, space, duration. If physiology can claim any vital element or principle, the generation, with the maintenance of animal heat, takes precedence."

Whether the cause of the production and maintenance of animal heat shall ever be correctly explained or not, is certainly a matter of conjecture. In this matter our sympathies are with Prof. Dowler, for we have no patience with those physiologists who ignore the vital element, and make of man only a chemical laboratory. Chemical action does not constitute the whole of life; if it did, the chemico-physiologists might manufacture full grown a man or a horse at pleasure.

Metallic Ligatures.—Silver sutures have been declared the greatest discovery of the present century. The honor of priority of use may become a matter of dispute. Prof. Dowler, in the May number of the *New Orleans Medical and Surgical Journal*, says that Henry S. Levert, then of Alabama, (now of Mobile,) wrote a thesis upon the subject of *metallic ligatures*, which was presented to the University of Pennsylvania, and subsequently, in May, 1829, published in *The American Journal of Medical Sciences*. Prof. Dowler reproduces, in the number of his journal referred to, the experimental portion of this thesis.

Incontinence of Urine.—In the *North American Medico-Chirurgical Review*, for May, Dr. Emil Fischer reports three cases of incontinence of urine, occurring in the practice of Prof. S. D. Gross, successfully treated with the *actual cautery*, after a failure of a persevering use of the usual remedies in such cases. The patients were respectively 19, 25, and 35 years of age. The cautery was applied to the upper portion of the lumbar region, and an issue established and kept open about the "size of half the palm of the hand." The reporter says, "the improvement following this treatment was rapid and really astonishing, proving the great advantage of this kind of issue over all others, and the powerful impression it exerts, both upon the part and upon the system."

Ovarian Tumors.—In the *North American Medico-Chirurgical Review*, for May, Dr. J. H. Wythes says he has seen, "in two or three instances, tumors, apparently ovarian, as large as a child's head, in one case persistent for four years, removed by the use of an ointment composed of extracts of belladonna and cicuta, with ung. hydrarg. and lard; a drachm or two of the extracts, with an ounce of each of the others."

In one case, in which treatment was ineffectual, he attempted its removal with the knife. "It was found universally adherent to the abdominal parietes and viscera." He says, "I made an attempt to break up the adhesions on one side with my finger, but finding them firm, abandoned all hope of removing the cyst." The fluid was drawn off, a tent inserted at the lower angle of the incision, and the wound brought together with sutures. Thirteen days later, tincture of iodine was injected. These were repeated every few days for a month, and a cure was at length effected.

Caffeine as a Remedy for Opium Poisoning.—In the *Southern Medical and Surgical Journal*, for May, Prof. H. F. Campbell has an article upon the subject of caffeine and its properties of controlling the narcotism of opium poisoning, with an illustrative case. The case reported was a man aged 24 years: "It was positively known that he had taken, in a fit of temporary depression, over *one ounce and a half* of laudanum, nearly an hour before."

The condition of the patient was alarming, and various means were employed for his relief, with but little promise of benefit. The respiration "was found to be but four to the minute," and "several times the intervals between the beats of the pulse led us to fear that the patient had expired." A trial of caffeine was now determined upon. "A small quantity of the caffeine was rubbed upon the tongue, and to the inner surface of each cheek. The patient was then laid upon his

side, *and an injection of the coffee, with twenty grains of the caffeine dissolved in it, was administered by the rectum*, with a common syringe. The patient was then immediately raised again to the sitting posture, and the artificial respiration resumed."

In less than half an hour evidences of improvement were manifested, and continued to increase without interruption, until recovery was effected.

Prof. Campbell says, "If in caffeine, so powerful an alkaloid—possessing, in a concentrated form, all the antisoporific virtues of coffee—we have thus found an antidote for the narcotic effects of opium, and one which can be applied even in the most extreme states, *by injection*, we must feel that an important extension of its application as a therapeutic agent has been made, and that many lives may be saved hereafter, by its use."

Prof. Campbell thinks the dose given was quite too large, and advises from *five* to *ten* grain doses of the caffeine, repeated until the desired effect is attained.

Quinine in Croup.—In the *Southern Medical and Surgical Journal*, for May, Prof. H. F. Campbell has an editorial article on the treatment of croup, in which large doses of quinine are advised. Of croup, he says, "as has occurred under observation in the Southern country, we are persuaded, has an obvious and important relation to malarial fever." He divides the treatment into that which is appropriate during the attack and that which is appropriate during the remission. In the paroxysm, he regards "*emetics* of the first importance," and of these he prefers ipecac. He would also advise the local application of cloths wrung out of cold water. "When the emetic has acted efficiently, and the paroxysm is somewhat relieved, there remains great *hoarseness*, and a tendency to a return of spasmodic constriction. There is often great *dryness* in the laryngeal respiration. At this stage, we have found *turpentine* a most valuable remedy, administered in the following manner:

℞.—Of Spts. of Turpentine,	℥j.
Brown Sugar,	℥ss.
Water, (warm,)	℥vj.

Mix well. Dose, one teaspoonful every hour or half hour, till the hoarseness subsides, when the time of administration may be prolonged." * * * "Our treatment during the *intermission* or *remission*, though by far the most important part, may be given in but a few words, for it may be summed up in these two: *Give quinine.*" "It is our constant, we may say invariable practice, to administer efficient doses of quinine each day, *for two days*, after each paroxysm of spas-

modic croup, with the view of preventing its return, and we expect this effect to follow its administration with as much certainty as when the drug is given in true paroxysmal fever." The dose recommended between each paroxysm varies from five to fifteen grains, in divided doses.

The quinine treatment of genuine croup is not altogether new, as our readers may know. Upon this point we take pleasure in referring to our *Summary* for December, 1859.

Of the quinine treatment, we then said: "For the last two years, the treatment that has been the most satisfactory in our hands, has been a combination of *quinine*, opium and ipecacuanha." * * * "Emetics we give when the symptoms seem to indicate their use, and generally select ipecac." We are glad to see the opinions of so high authority as Prof. Campbell correspond with our own, and the results of his experience confirm our observation.

We would advise those of our readers who have persisted in the old methods of treating croup, and of losing most of their patients, to read the article of Prof. Campbell above referred to, also a paper upon the same subject, in the *New York Journal of Medicine*, for September, 1859.

Diphtheria.—In the *Chicago Medical Examiner* for May, Dr. Orrin Smith has an article upon the subjects of croup and diphtheria, in which some opinions are expressed differing from those usually entertained. Of the pathology of diphtheria Dr. Smith says, "I apprehend there is often an error in making up the mind of the true pathology of this disease, for so long as the mucous membrane is in such a state of inflammation as to throw out the diphtheritic deposit, it is most certainly sthenic, or rather, inflammatory action, as in no other condition of the mucous membrane is this deposit thrown out; and I find it very *hard* to understand when the mucous membrane is in this particular and definable state of inflammation, how the contiguous areolar tissue can be suffering from asthenic action, or disease of debility; or in other words, how parts not one-fiftieth of an inch distant can be suffering, the one from active inflammation, and the other from the want of even normal tone. Nor do I believe that such a condition ever exists." When Dr. Smith asserts that the inflammation of diphtheria is "*most certainly sthenic*," we think he asserts a very pernicious error. He has evidently never seen the disease, or else observed it with different symptoms from such as accompany it in cases which have fallen under our observation. As we have seen it, it has seemed as though the disease was char-

acterized by the presence of a blood-poison, that was powerfully operative in producing a dissolution of the tissues. We have repeatedly seen deep sloughs, or ulcerations, form in the tongue, cheeks, lips, fauces, &c., in a very short space of time, and wonderfully indisposed to throw out granulations, even under the local action of powerful stimulants. We have also seen large abscesses form suddenly, and without premonition, or evidences of local inflammation, showing this tendency to dissolution of organized textures, as ir. impoverishment or poisoning of the blood.

We quote the conclusion of Dr. Smith's paper: "The duration of diphtheritic inflammation depends upon the character and efficiency of the treatment. If treated from the first with tonics and specifics, the duration may be for days and weeks. If treated as above indicated, that is, with as large doses of antimony as the patients will bear, frequently repeated, as is the custom of many to treat pneumonia, a few hours suffice. And with regard to debility—the bugbear which has destroyed its thousands—there is none of it, so long as the peculiar diphtheritic deposit is manifested, whether in the fauces, larynx, or trachea, and this deposit alone may be taken as evidence of active inflammation." To all this we are disposed to oppose only a little item of experience. We have treated ten or twelve cases, and when we could get our patient to take from half a pint to a pint of whiskey per day, if an adult, in the form of *egg nog*, we expected a recovery in a few days; and, under less efficient treatment, we have seen a low typhoid condition protract itself for six or eight weeks. Out of our cases one only died; a clergyman's wife, aged 51 years. She was not going to take whiskey; "no, she would die first." She was as good as her word, and died in spite of us. This woman's husband was taken equally as severe; he was more prudent, carried out our directions to the letter, and was not entirely confined to the bed for a day. Deductions from such experience are worth more to us than any amount of theoretical reasoning.

Radical Cure of Hernia.—Prof. J. J. Chisolm, in the May No. of the *Charleston Medical Journal and Review*, has a few remarks upon the radical cure of hernia. His plan of operation differs from that of Wütz̈er, also from that of Wood; it is, in fact, a combination of the two. We will quote his description: "The operation consisted in invaginating a portion of scrotum, when a long staff needle, guided by the finger, was introduced into the ring, and was made to traverse the external column, near Poupart's ligament. When it protruded through the abdominal walls, one end of the thread was drawn out

of the wound, whilst the needle, which was now drawn backward, was made to transfix the internal column, near its attachment to the pubic bone, and appear through the skin, when the thread was drawn outward, and the needle, minus its thread, backward. By gliding the skin, as recommended by Wood, the needle, although perforating different portions of the external oblique tendon, made but one opening in the skin. Upon drawing the suture and securing it over a piece of bougie, the canal was puckered to closure." Four cases have been operated upon in this manner, with good results.

Prof. Chisolm makes one remark in regard to the silver suture not flattering to that much-lauded innovation. He says: "As the silver wire gave much more pain on withdrawing it than the pliant flax thread, and as its presence was equally *followed by suppuration*, I decidedly prefer either the silk or flax thread."

Abortion of one Fœtus in the Case of a Twin Conception.—In the *Charleston Medical Journal and Review*, Dr. J. Douglass mentions a case of a lady that aborted at three months, and six months later he says she was delivered of a full-grown and healthy child.

Iodine as a Remedy for the Poison of the Bite of the Rattlesnake.—In the *Chicago Medical Journal* for May, Dr. J. S. Whitmire has an article on the treatment of the consequences of the rattlesnake bite. Eleven years ago he first called attention to the properties of iodine in such cases, and now, after treating 75 cases, he repeats his confidence. He says: "When called in a recent case, or even within fifteen hours of the bite, I now adopt Prof. Brainard's plan, which is, to inject the cellular tissue, in and about the wound, with the tincture of iodine, by means of a sharp-pointed silver syringe, and then proceed to paint the swollen parts thoroughly with the tinct., and to keep in advance of the swelling, from two to three inches, and in recent cases this is all the treatment necessary to complete the cure. If called after the constitutional effects of the poison have become developed, I paint the limb, and even the whole body, with the tinct., and give, internally, wine or brandy with iod. potass. and chlor. potass., dissolved and largely diluted in water, till urgent symptoms begin to subside, and then administer quinine and iron as a tonic, &c."

Chloroform as a Therapeutic Agent.—In the May No. of the *St. Louis Medical and Surgical Journal*, Dr. F. W. White has a paper upon the therapeutic action of chloroform. In regard to its action he says, "In moderate doses it is a mild *sedative narcotic*, at first slightly stimulant, but not so exhilarating as alcohol, and afterwards sedative, without causing depression like opium." To quiet the nervous excite-

ment in fevers, he says, "I think there is no agent more efficacious or less objectionable than chloroform; this is true not only in fevers, but in all diseases characterized by exhaustion of nerve-power." In regard to its harmlessness, when administered into the stomach, as we suppose Dr. White means, though he does not say so, he says, "I have administered it for twenty-one days in half-teaspoonful doses every six hours, and more frequently, when required to procure sleep, without the least unpleasant symptoms."

That the nervous system plays a more important part in the manifestation and perpetuation of disease than is generally conceded, we firmly believe, and we believe that medication with reference to the nervous symptoms is too much neglected; though how much reliance can be placed upon chloroform in the accomplishment of the end here alluded to, we do not know.

We have several times used chloroform by inhalation, under circumstances in which we do not remember of having seen it previously recommended. As this may not be an inappropriate place to specify, we will do so briefly. In some cases of consumption, also in many other cases, death comes through a painful and protracted struggle. In such cases we have administered chloroform in small and frequently repeated doses, and for such treatment have had the satisfaction of receiving the warmest expressions of gratitude from the dying sufferer. In such cases we do not annihilate sensibility, but the patient is kept under the soothing influence of the chloroform, as the necessity of the case may require. Under this treatment the respiration of the dying consumptive becomes slower, less labored and painless, the cough becomes less frequent and less aggravating, and the otherwise protracted agonies become comparatively a period of comfort. The most piteous pleadings that we have ever heard have been for chloroform in these cases, and the most earnest and sincere thanks and expressions of gratefulness have been the last words of such, whose dying agonies we have thus divested of their terrors. To cure a patient that, left to nature, would die, is a duty that every physician takes pleasure in accomplishing; but, really, the most melancholy, and yet the most binding obligation, resting upon the physician, is to mitigate pain, and smooth the pathway to the grave, where a cure is placed beyond the possibilities of a hope.

Version by External Manipulation.—In the *Medical Press* for May 19th, Prof. Fordyce Barker reports a case of version by external manipulations. This subject is one of unusual interest at the present time. The conclusions which Prof. Barker thinks the case justifies

are the following: 1st. "That a malposition of the fœtus in utero can be detected by external manipulations during labor." * * * 2d. "I think this case demonstrates that a malposition of the fœtus in utero can be detected by external manipulations *prior* to labor." * * * 3d. "This case demonstrates the possibility of performing version by external manipulation during labor." * * * And 4th. "It demonstrates the possibility of *performing* version by external manipulation *before* the labor commences."

Gelseminum in Typhoid Fever.—In the *Medical and Surgical Reporter* for May 12th, Dr. E. H. Sholl has an article upon typhoid fever, &c., in which the following language occurs: "In the gelseminum, after much experience in its use, we have, I believe, a remedy of the most universal applicability that the world furnishes, and an invaluable addition to our means of combating disease in its various forms."

Treatment of Mania à Potu.—In the *Medical and Surgical Reporter* for May 19th, Dr. L. P. Gebhard has an article upon delirium tremens, in which novel views of pathology and treatment are proposed.

He believes the stomach to be mainly at fault, and delirium tremens essentially a *gastritis*, differing only from ordinary gastritis in a "peculiarity solely produced by the peculiar nature of its cause." We quote his treatment: "Believing the stomach to be in an inflamed state, and finding a tenderness of the epigastrium upon pressure, I have recommended cupping over the whole region of the stomach, and abstracting blood therefrom by scarification, with great benefit to the patient, relieving the delirium, and at the same time calming and composing his mind, which, together with the internal use of opiates, generally soon succeeded in procuring the rest so desirable in the cure of this disease. Very early in practice, I was in the habit of administering camphor with opium until sleep was obtained, which is generally known to be a *sine qua non* in all cases. Of late years I have given a mixture of sulphate of morphia, ext. of hyoscyamus, and ext. of valerian in a mixture, with decided advantage. I have never found it necessary to administer either alcohol or fermented drinks, in order to sustain the strength of the system; always finding that by lessening the inflammatory state of the stomach by external depletion and counter-irritation, combined with the internal use of mild narcotics, the recuperative powers of the system soon raised it from the depression and indirect debility under which it was laboring, and restored it to its former healthy state."

Tracheotomy in Croup.—In the *Boston Medical and Surgical Jour-*

nal, for May 3d, Dr. George Hayward, Jr., reports a case of membranous croup, occurring in a child fourteen months old, in which tracheotomy was performed, and the patient recovered. The case presents one or two points of interest; it is claimed that the case was complicated with pneumonia of both lungs, though the inflammation did not involve a very considerable portion of the lungs. In such a case, recovery would hardly be expected, as a common result from usual treatment. The operation was resorted to early, and before immediately alarming symptoms were present, and to this caution was probably due the success. There was nothing peculiar about the after-treatment, except that 15 drops of a solution of nitrate of silver (℈j. to ℥j.) were injected through the tube every three hours.

Pike's Peak as a Residence for Consumptives.—In the *Kansas City Medical and Surgical Review*, for May, in an article by a nameless writer upon the "*Medical Topography of Pike's Peak Gold Region*," the author has the following in regard to its adaptation for a residence for consumptive invalids: "To the *asthmatic*, and those laboring under a *tubercular diathesis*, no part of the globe promises more than this region. The purity and dryness of the atmosphere, and its diminished pressure, by which the chest is expanded, the exercise and diet, incident to a mountain life, together with uniformity of temperature, are hygienic conditions most favorable to this class. These theoretical views are fully corroborated by statistics. Among all the Indian tribes inhabiting this tableau, tubercular consumption is almost unknown. The government troops stationed at the different posts, and the army of traders and trappers that have peopled this region for the last half century, have enjoyed a like immunity from this fearful scourge of our race.

"Our advice, then, to this class would be to discard drugs and doctors, and leave the crowded cities where the damp, heavy atmosphere, loaded with impurities, counteract any good effect produced by medication; and forsake sea-coasts and watering-places—the common grave-yards of consumptives—and spend a season at Pike's Peak—not necessarily in searching for gold—but in chasing deer, antelope, and bear, and living upon their flesh; more particularly the latter, whose fats consumed in this elevated mountain home are worth all the *Oleum Jecoris*, Cod-Liver Oil, in the world. Here, and here alone, we verily believe, this mournfully interesting class of patients will find the long-sought *elixir vitæ*. It gushes out from every lofty mountain summit scaled by the invalid, is imbibed with every inspiration, hovers around every rude camp-fire, and is taken with every trophy of the invalid's gun, made upon this lofty tableau."

While we will not doubt the correctness of the above, we must express the conviction that the consumptive invalid will, or may, find localities where exercise may be found as conducive to health as at Pike's Peak, much nearer home. There is not a more foolishly vain thing in the world than the common practice of seeking for health at the various fashionable watering-places in the country.

Pure air, simple diet, active exercise, freedom from the conventionalities of fashionable life, early rising, early repose, and undisturbed and refreshing sleep at night, are all requisites in the invalid's seekings. The consumptive who has not the means nor inclination to go to Pike's Peak, can find all the requisites for health there to be found, and more, inside of the boundaries of the State of New York.

Foreign Bodies in the Œsophagus.—In the *Cleveland Medical Gazette*, for May, Prof. John Delamater has a very interesting communication under the head of "*Reminiscences of Country Surgery*," in which the treatment of foreign bodies in the œsophagus is well illustrated. We make one quotation: "Failing in all my attempts to extract different bodies lodged as I have described above, I was compelled, as a dernier resort, to press them into the stomach, though this was done a little tremblingly at first, from the adverse current of popular sentiment, notwithstanding I had probably been led to apprehend, from various considerations, that the sufferings and loss of life which had been attributed to these foreign bodies, having been lodged in the stomach, were, *in most, if not in all instances, really due to their detention in the inferior part of the tube*, rather than from their delay in the stomach. But as I could observe no mischief to result from these bodies being pressed into the stomach, I became bolder in my way, so as not to bother myself much with other measures, and the result was that I have forced a good many cents, buttons, layers of shells, as of clams or oysters, into the stomach, without ever having been able to trace any subsequent evil or inconvenience to result therefrom."

The Effects of the Imagination upon Pain.—In the *Dental Cosmos*, for May, its editor, Dr. W. W. White, reports a case in which an ignorant female requested the extraction of a tooth by electricity, which she had learned was a painless procedure. Dr. White's electrical machine was entirely out of order, yet he requested his patient to grasp the metallic rods firmly, while he applied the forceps and removed the tooth. When the tooth was extracted she was buoyant with delight, *declaring that she felt no pain*, though, in fact, there was no more electricity passing from the battery than from the forceps used in the extraction.

REVIEWS AND BIBLIOGRAPHY.

A Treatise on Medical Electricity, Theoretical and Practical, and its Use in the Treatment of Paralysis, Neuralgia, and other Diseases. By J. Althaus, M.D. Philadelphia: Lindsay & Blakiston. 1860. Pp. 354. 12mo.

This handsome reprint fills an important niche which has been vacant for years. It is true that Aldini wrote on this subject, and with considerable ability; but so little has his book been read, that most physicians are ignorant even of his name. Matteucci, of Pisa, Becquerel, Duchenne, and Bois-Reymond, of France, Bird, of England, and other enthusiastic laborers in this department of science, have written useful and interesting treatises on the subject; still, these were too much occupied with mere speculations, and contained too little that was practical, to make them of general utility to the medical profession. Dr. Althaus, a German by birth and education, whose long residence in London has enabled him to manage the English with the facility of a native, has contrived to compress, within the compass of a moderate-sized volume, more useful matter to the physician on the subject of electricity than has been done by others in larger and more imposing treatises.

The book is divided into five chapters, treating respectively of—Forms of Electricity, Electro-Physiology, Medical-Electric Apparatus and its application, Electricity as a means of Diagnosis, and Electro-Therapeutics.

The differences between Static and Dynamic Electricity are very clearly set forth, and one is taught how different *quantity* and *tension* are, from an electrical point of view. Dynamic electricity is generally employed for therapeutic purposes, and is evolved from galvanic pairs, or an arterial magnet. This is capable, not only of passing through metallic conductors, but also through the human body, which is a conductor on account of the fluids, containing saline substances in solution, which permeate it. Matteucci concluded that "the muscles conduct four times better than the nerves, whilst the nerves conduct a little better than the brain and the spinal cord." This conclusion seems, to Althaus, somewhat empirical, being based on a series of experiments which involved unavoidable liability to error. Eckhard, of Giessen, published some experiments on this subject, in 1858, which are more reliable, and his conclusions were, "that the muscles are the best conducting tissue of the animal body; that there is no remarkable difference in the conductibility of nerves, cartilages, and

tendons; and that the bones are very imperfect conductors of electricity." The whole results of his researches can be thus expressed:

The resistance of	muscles	=	1.
"	cartilages	=	2.
"	tendons	=	2.1.
"	nerves	=	2.1.
"	bones	=	19.

Singular to say, these figures correspond with the amount of fluids contained in the respective tissues.

Having thus disposed of the subject of conduction, Dr. A. gives a clear account of Electro-Magnetism and Animal Electricity. In describing the conclusions of Professor Henry, of the Smithsonian Institute, on this subject, a slight error, doubtless of the printer, occurs: the induced currents in different spirals are opposite in direction to the inducing currents; hence, in the expression, "If the current induced in the second spiral be *positive*, that induced in the third wire would be positive again, whilst that induced in the fourth would be negative, that in the fifth positive again," &c., (p. 62,) the first *positive* is evidently intended for negative. In the brief description of Animal Electricity, there is also another error which deserves correction. It is stated, (p. 76,) in experiments made for the investigation of this form of electricity, that "both extremities of the wire of the multiplier are connected with platinum plates, which must be as *heterogeneous* as possible." Of course homogeneous is the word intended by the author, since he proceeds to say, "as the slightest difference between the two platinum plates would of itself cause a current," &c. In this connection, we may notice the contradiction of Matteucci's statement, that there is a gastro-hepatic current, constantly flowing, and one of the manifestations of animal electricity, which is not the effect, "but the cause of the chemical metamorphosis of the saline ingesta, the decomposition of which furnished acid to the stomach, and alkali to the liver." Donne's experiments, made in 1834, contradicted this idea, and satisfactorily demonstrated that this "so-called gastro-hepatic current is only an *artificial* electro-chemical phenomenon, and has nothing whatever to do with animal electricity."

The electro-physiological effects are different with the different forms of electricity, the *quantity* and *intensity* of the same, the property and function of the organ acted upon, and "the mode in which the electricity is transmitted to the organs." This chapter is replete with excellent suggestions, which should be read by every one who desires to study the subject of electricity in connection with physiology. The blunders committed by charlatans who propose to cure all

diseases by electro-magnetism, can be well understood after one has studied the *rationale* of the beneficial or injurious effects it may produce, and has learned how the cure, when improperly used, may be made the cause of aggravation of the disease. We should like to quote largely from this chapter, but space will not permit us, in the necessarily limited review we are making of this treatise.

The author shows (p. 152) how "inherent (Hallerian) muscular irritability has been proved: 1. By microscopic observations of Mr. Bowman, showing a partial contraction of muscular fibres, which have been entirely isolated from every extraneous tissue; 2. By the experiments of Bernard, Kölliker, and himself, with woorara, which kills the motor nerves, and leaves the muscles intact; 3. By the microscopic observations of Dr. Wundt, showing an action of the closed, continuous current upon the muscular fibre when the electrodes are directly applied to the muscles, and no such action of the stimulus be conveyed to the muscles by the instrumentality of the nerves. Thus, it is evident that by the electric current the molecular equilibrium of the muscles may be directly disturbed, just as well as the molecular equilibrium of the nerves;" * * but the latter is more easily disturbed than the former.

Medico-Electrical Apparatus and its Application forms the subject of the third chapter. Static electricity was first employed for medical purposes by Kratzenstein, (1744.) He was followed by Jallabert, (1748,) the Abbé Sans, (1772,) and Mauduit, (1778.) Althaus thinks that its use has generally disappeared from medical practice, because clumsy apparatus is required for its administration; there is difficulty in regulating the amount employed, and it is not possible to localize the stimulus in the parts required. The principal modes of employing it are: "the electric bath, electrization by sparks and shocks from the Leyden jar."

Shortly after the discovery of Galvanism, (1786,) it was employed by Heufland, Pfaff, Reil, and others, in disease; and Aldini's treatise (1804) was one of the first published on the subject. In the employment of the constant current, the batteries of Daniell, Grove, and Bunsen are recommended whenever *constant* physiological, chemical, or calorific effects are required—Daniell's being the best. *Pulvermacher's* chain batteries, which have been employed somewhat empirically in this country, consist of a series of pairs, forming a species of Voltaic pile, each wrapped around a piece of wood. The battery is put in action by first steeping it in vinegar; the wood absorbs sufficient to become a feeble conductor. The objection to them is the in-

constancy of the current generated, and the liability to the production of a cauterizing effect, if the position of the poles is not occasionally changed.

In the use of induction currents, which are furnished by the ordinary electro-magnetic or magneto-electric machines, much care should be taken as to the choice of a good machine. Althaus discusses this subject carefully, and arrives at some conclusions which we transfer to our pages. "The electrician should possess the two sorts of electrical machines—the Volta-electric for the treatment of paralysis and neuralgia, and the magneto-electric, if induction currents are employed in treating deficiency of vision, and for the absorption of rheumatic callosities. * * Every apparatus fit for medical use must possess a regulator, by means of which the intensity of the current may be easily increased or diminished; * * it must furnish two currents, viz., the primary current or extra current, induced by the action of the spirals of the thick wires on themselves; and the secondary current, or the current induced on the second wire, which is long and fine; and there must also be the *rheotome*, *cut-current*, or *contact-breaker*." Any induction machines possessing these qualities "may be usefully applied in medical practice."

The most important mode of employing electricity is that invented by Duchenne, and called FARADIZATION, and consisting in the local use of electricity by induction currents. Here, an effort is made to confine the electrical fluid to the organ under treatment. It was a beautiful idea to connect the name of the great English electrician with this most important use of electricity. There are two modes of electrifying the muscles: "by concentrating the electric stimulus in the nervous plexuses or branches, which communicate their excitation to the muscles animated by them, *(indirect muscular Faradization,)* or by directing the current to the muscular tissue itself, *(direct muscular Faradization.")* The application requires the employment of wet sponges, contained in cylinders attached to insulating handles; or, where it is to be limited to a small space, of small conical excitors, covered with wet leather.

We can barely transcribe from the chapter on *Electricity as a Means of Diagnosis* some conclusions on the subject of wasting palsy, which may enable the practitioner to get an idea as to the paralyzing lesion. "1. If the excitability of the muscles—or, rather, the polarity of the motor nerves—be *increased* in the paralyzed limb, the case is one of *cerebral paralysis*, connected with an irritative lesion within the cranium. 2. If the excitability of the muscles be nearly

or totally lost, we have, in all probability, either *lead-palsy* or *traumatic paralysis;* but it must be kept in mind that certain hysterical and rheumatic palsies of long standing present the same peculiarity; and that it also may be found in cases of diseases of the brain and the cord. 3. *If paralyzed muscles respond readily to the electric current,* there is no lead in the system, nor is the connection between the motor nerves of the paralyzed muscles and the cord interrupted; but if such cases are of *long standing,* they are due to *brain disease;* and if they are of *recent standing,* they are generally instances of *hysterical, rheumatic,* or *spontaneous* paralysis."

But electricity is also of importance in therapeutics, although its employment has been empirical with most of the profession. We are able to diminish or quicken the nervous action by its influence, and to produce wonderful results in the way of exciting dormant muscular action in paralysis, or quieting the hyperæsthesia of neuralgia. Althaus very sensibly observes, that "it must not be supposed that electricity can be successfully applied in every case of paralysis, spasm, &c., &c.; * * since loss of power, spasm, anæsthesia, and neuralgia are by no means well-defined diseases, but merely *symptoms of diseases,* to which the most various disorder may give rise."

In the treatment of paralysis by palsy, we find three propositions stated, as underlying the author's view of the subject. The galvanic stimulus has the power of producing such a disturbance "of the molecular equilibrium of the motor nerves and muscles, as to produce the state in which they are physiologically active;" "this allows the necessary alternate contraction and expansion of the muscles," and "thus augmenting the chemical changes in, that is, the oxydation of, the muscular tissue, causes a more abundant supply of arterial blood to it, which is evidenced by an increase of heat and bulk in those parts which have been galvanized, and which in its turn augments the nutrition of the muscle." These propositions being proved, he shows the proper mode of treatment in various forms of paralysis, as well as in chorea, writers' cramp, spasmodic wry-neck, tetanus, &c., &c. Great care is taken to prevent the adoption of the idea that electricity is anything like a universal panacea, but is only a very *efficacious* therapeutic agent in these affections. The author cannot be charged with the slightest taint of empiricism, although he has so fine a field for riding his hobby successfully. For instance, he doubts the efficacy of the electro-chemical bath, although "we cannot affirm, *à priori,* that it is devoid of all effect." In the review of Gregory's Chemistry, (American Medical Monthly, VII., 97,) we expressed our incredu-

lity as to the feasibility of this method, although we admitted the possibility of some action by means of the electro-chemical bath. This whole subject is based upon a paper presented by Poey to the French Academy in 1855, and the fallacies involved in the assumptions and statements of this author are clearly shown by Althaus; and furthermore, he adds, that "Eli B., affected with epilepsy, blackened with nitrate of silver, and recently castrated by Mr. Holthouse, told me in 1857, when I saw him in Nelaton's Clinique de la Faculté, in Paris, that he had tried the electro-chemical bath at New York, for a long time, to get rid of the black color, but without the slightest effect. In my opinion, this is a strong case against the electro-chemical bath."

The book closes with a short account of the application of galvanism in surgery, as an actual cautery, as a coagulant of blood in aneurisms and varices, and as a means of dissolving urinary calculi; for curing ulcers, promoting the absorption of exudates and dissolving cataracts. We heartily recommend the book to the careful perusal of our professional brethren. Let electricity be rescued from the hands of empiricism, since, in the words of our author, "in this remedy, more than in any other, the mode of application has an all-important bearing upon the results; for it is *not* electricity that cures diseases, *but the physician, who may cure diseases by means of electricity.*"

L. H. S.

The New American Cyclopædia: A Popular Dictionary of General Knowledge. Edited by GEORGE RIPLEY and CHARLES A. DANA. Vol. IX. *Hayne—Jersey City.* New York: D. Appleton & Co. 1860. Pp. 784.

The ninth volume of the Cyclopædia is well adapted to satisfy the expectations of its friends and patrons. The articles are prepared with special care, and they are remarkable for their freshness—a peculiarity of this publication which we have noticed in the earlier volumes. This freshness has been secured by employing the services of men of note and ability, not only in our own country, but also in Great Britain and the Continent. Their contributions present a marked contrast with those which fill the pages of like publications; the latter, although most generally accurate and reliable, are often dull and heavy, while the former are sprightly and attractive, as well as instructive. The publication has become a decided favorite with us; so much so, that whenever we find an article not fully equal to the other articles, in point of treatment or undue prolixity on an un-

worthy subject, (instances of this kind are rare,) we feel that we have a right to indulge in a quiet growl. This volume, however, allows us no opportunity for objection, and we place it on our bookshelves with unmitigated satisfaction.

The following members of our profession have been engaged in the preparation of the ninth volume: E. Brown-Séquard, London; John W. Francis, Levi Reuben, Charles Kraitsir, B. W. McCready, and R. S. Fisher, New York; and S. Kneeland, Jr., Boston. The number of collaborators engaged in *its* preparation is stated as nearly one hundred. The completion of this Cyclopædia is looked for anxiously by those who long for "a complete popular Dictionary of General Knowledge."

A Critical Dictionary of English Literature, and British and American Authors, living and deceased, from the Earliest Accounts to the Middle of the Nineteenth Century. By AUSTIN S. ALLIBONE. Vol. I. Philadelphia: Childs & Peterson. 1859. Pp. 1,005.

After a careful examination of the above, we can but express our astonishment that it is the result of the industry, energy, perseverance and ability of *one* author. We have never met a book, covering so extensive a field, which so completely realized all our ideas and wants on the subject under treatment. The power of condensation possessed by the author is evidenced in every line, while it never interferes with a most excellent feature of the book, its perfect reliability as to dates and figures generally. The want of such a book has been more or less felt by every student, and there never has been furnished, from the English press, anything so well adapted to supply it. Here we are to have (when the second volume is completed) some thirty thousand sketches and literary notices of English writers. Of each author some account is given—greater or less in length, as his own prominence or insignificance may require. This consists of the date of his birth, place of nativity, important appointments held during life, titles of writings, best editions of the same, and critical notices from contemporary or other writers, whose opinion would aid us in forming an estimate of the author's character. Now it will be understood, that this care is not only taken with the bright and shining lights of the literary world, but also with the *homines obscuri;* so that the student, in a small compass, is presented by Mr. Allibone with a perfect litera y treasure, filled to the brim with the richest stores of bibliographical and biographical lore.

But Mr. Allibone, not satisfied with accomplishing all we have already noticed, promises us "forty indexes of subjects," which will enable the cultivator of any specialty, at a glance, to find "all the authors of any note in the language," who have written upon that particular specialty. These indexes will truly constitute "a comprehensive manual of English Literature," giving the book an additional feature of interest. The physician thus obtains a knowledge of the English literature of his profession, while he has at command a store of general information. The latter is, however, not to be overlooked by the medical profession. By a sort of natural right, a widely-extended department of knowledge falls within its range of study; all studies of nature belong to it, and the names of its members are connected with most of the discoveries of natural science. This has been so from the earliest periods of its history, down to the discovery of the planet Vulcan, by Dr. Lescarbault, the busy practitioner of the village of Orgères, during the year which has just closed. It will be a great thing to have at our hands a summary of what has been written by those of our profession, using the English language, and it may stimulate us to constant exertions towards increasing the extent of our heritage.

The first volume of Allibone's Dictionary comprises all English authors from *Abiel Abbot* to *Jyl of Breyntford.* The second is under process of preparation, and will appear as soon as such a work can be made ready for the press. We understand that a large proportion of the volume is already stereotyped. Our readers would do well to add this book to the number of those they employ for daily reference.

L. H. S.

PROCEEDINGS OF SOCIETIES.

American Medical Association—Thirteenth Annual Meeting.

FIRST DAY.

The delegates to the Association met in the Chapel of Yale College, at New Haven, Tuesday morning, June 5, and at 11 o'clock the Association was called to order, the President, Dr. Henry Miller, of Kentucky, in the Chair.

Prof. Fisher, of Yale College, opened the Convention with prayer.

Dr. Jonathan Knight, the Chairman of the Committee of Reception, welcomed the members of the Association to New Haven.

Dr. Charles Hooker, the Chairman of the Committee of Arrangements, also welcomed the delegates.

The roll was then called, nearly 300 delegates answering to their names.

The sections were then assigned their rooms, by Dr. Hooker.

All physicians and surgeons of the Army or Navy present were, upon motion of Dr. John Atlee, invited to take seats upon the floor of the Convention.

A report from the Committee on Parliamentary Rules was, after some discussion, laid upon the table.

Upon motion, a recess of ten minutes was had, to allow each State to choose its member for the Nominating Committee. Upon reassembling, the Committee on Nominations was declared; after which, the Association adjourned.

AFTERNOON SESSION.

The Association met at 3 o'clock, Vice-President H. F. Askew, of Del., in the Chair.

Dr. Charles Hooker introduced Gov. Buckingham and Lt. Gov. Catlin to the Association.

The Secretary, Dr. Bemiss, of Ky., then gave the names of the Committee on Credentials.

The retiring President, Dr. Henry Miller, then gave his address, which we are obliged to omit for want of space.

The Nominating Committee reported the names of officers for the Convention for the ensuing year, as follows:

President—Eli Ives, Conn.

Vice-Presidents—Wilson Jewell, Pa.; A. B. Palmer, Mich.; Joseph P. Logan, Ga.; J. N. McDowell, Mo.

Treasurer—Caspar Wistar, Pa.

Several invitations to visit prominent public places and factories of the city were read, and times set apart for such visits.

Motions were made of acceptance of the invitations, &c.

Motion made to suspend business and receive the officers just elected.

President Dr. Ives then appeared, attended by the escort appointed by the Association, and was cordially received by the members. He then made a very short address, of which the following is nearly a verbatim report:

"All he had, all he was, he owed to his profession. He loved it. He had two sons in the profession, also a grandson; and he, like a very distinguished physician of the present century, could say he would visit the sick as long as he could go, and when he was unable, he would be carried to the bedside."

He was followed by First Vice-President, Dr. Wilson Jewell, who, on account of the age of the President elect, it was agreed upon should preside over the deliberations of the Convention.

Dr. Davis, of Indiana, offered a series of resolutions to the specific business of morning and afternoon sessions, as follows:

Resolved, That the geneal meetings of the Association after this day, shall be restricted to the morning sessions, and the afternoon sessions, commencing at 3 o'clock, shall be devoted to the hearing of papers and discussions in the several sections.

Resolved, That each section shall choose its own officers, and make its own rules of order.

The first and second resolutions were adopted; the third, after much discussion, was laid upon the table, with the proviso that the mover should have an opportunity to revise it, and, at his own time, bring it again before the Association.

Dr. Little, of California, on motion of Dr. Timothy Childs, and seconded by Dr. D. S. Conant, was invited to a seat on the floor of the Convention, there being no delegate from California.

A Committee on Voluntary Communications was then appointed, viz.: Drs. E. D. Foree, of Kentucky; T. W. Blatchford, of New York; N. S. Davis, of Illinois; R. LaRoche, of Pennsylvania; Rochester, of New York.

At his own request, Dr. LaRoche was excused from serving on this committee.

Dr. Reuchenberger, of Pennsylvania, was appointed in his stead.

The report of the Treasurer was then called for, read and adopted, then referred to Committee on Publication.

The Committee on Publication then reported. Report accepted.

Committee on Prize Essays was called on to report, but failed to do so through absence. Adjourned.

SECOND DAY—WEDNESDAY.

The Convention was called to order by the 1st Vice-President, Dr. Wilson Jewell, of Pennsylvania.

The President announced that the subscription list for the publications of the Sydenham Society was on the Secretary's table.

An opportunity was now given for delegates to name physicians from States not represented, and from the Army and Navy, as members by invitation.

Dr. Gardiner moved that the rules of order be suspended for Dr. Logan, of Georgia, to tender his resignation as Vice-President. Resignation accepted.

Committee on Education reported—Dr. Reese, Chairman. He particularly dwelt on the necessities in preliminary education—Practical Anatomy, Pathology and Clinical Medicine. He ably supported his arguments in favor of lengthened terms of study, with a less number of lectures per day—four being the maximum.

Dr. Brodie moved that the Report and Resolutions connected with it be received and referred to the Committee on Publication. Received.

On motion, the report was received. The Association, on motion of Dr. McDowell, of Missouri, resolved itself into a Committee of the Whole, Dr. H. S. Acker in the chair, and proceeded to the discussion of the Resolutions.

A motion was then made that the Committee rise, report progress, and ask leave to sit again, which was carried.

The Committee on Nominations reported that the Convention will meet at Chicago on the 1st Tuesday in June, 1861. Amendment offered that it be changed to the 1st Tuesday in May.

Dr. Davis, of Ill., spoke for the Illinois delegation, urging June as the proper month—furthermore, he welcomed the Convention to the hospitalities of the citizens of Chicago.

Motion was made to change the time to the 2d Tuesday of June; unconstitutional.

The whole list of officers was not reported yesterday. The Committee on Nominations here concluded their report, as follows:

In place of 3d *Vice-President*, Dr. Logan, of Georgia, resigned, Dr. R. D. Arnold, of Georgia.

Secretaries—S. G. Hubbard, Ct.; H. A. Johnson, Illinois.

Committee of Arrangements—N. S. Davis, G. W. Freer, De Laskie Miller, E. Andrews, H. W. Jones, Thomas Bevan, J. Bloodgood, all of Illinois.

Prize Essays—Daniel Brainard, Ill.; D. L. McGugin, Iowa; M. L. Seaton, Mo.; John Evans, Ill.; A. S. McArthur, Ill.

Committee on Publication—S. G. Smith, Penn.; Caspar Wistar, Penn.; S. G. Hubbard, Conn.; R. I. Breckenridge, Ky.; Ed. Hartshorne, Penn.; H. F. Askew, Del.

Report of Committee on Prize Essays was called for—Prof. Worthington Hooker, of Conn., Chairman. Three Essays had been handed in—two of which had considerable merit, and showed much research. The Committee had concluded not to award any prizes this year. Report accepted.

Moved a suspension of the rules, to give Dr. Wilbur, of N. Y., an opportunity to report the protest of Dr. Ignatius Langer, of Iowa, against the action of the Committee of Arrangements in not accepting his credentials as a delegate. The President stated he held in his hand a letter stating that Dr. Langer had been expelled from the Scott County Medical Society of Iowa, and therefore the rules of the Society would not permit his acceptance as a delegate here.

Motion to suspend lost, almost unanimously.

Reports of Special Committees were then called for, and disposed of as follows:

Morbus Coxarius and Surgical Pathology of Articular Inflammation—Lewis A. Sayre, N. Y.; referred to the section on Surgery.

Surgical Treatment of Strictures of the Urethra—James Bryan, Penn., reported progress and asked for longer time; referred to its proper section.

Drainage and Sewerage of Large Cities, their Influence on Public Health—A. J. Semmes, Cornelius Boyle, G. M. Dove, D. C.; reported progress and asked for longer time.

Puerperal Tetanus; its Statistics, Pathology and Treatment—D. L. McGugin, Iowa; report the same as above.

Hospital Epidemics—R. K. Smith, Penn.; laid over.

Puerperal Fever—S. N. Green, Indiana; do.

Anæmia and Chlorosis—H. P. Ayres, Indiana; reported progress, and asked to continue the Committee, to report next year.

Veratrum Viride—J. B. McCaw, Virginia; laid over.

Alcohol; its Therapeutical Effects—J. W. Dunbar, Md.; asked

for a change in its title, making it read, "Alcohol in its relations to man,"—granted. Report next year.

Meteorology—J. G. Westmoreland, Georgia; laid over.

Milk Sickness—Robert Thompson, Ohio; partial report made—accepted and referred to section of Practical Medicine.

Manifestations of Disease of Nervous Centres—C. B. Chapman, Wisconsin; laid over.

Microscopic Observations on Cancer Cells—George N. Norris, Ala. Chairman asked to resign; Committee discharged.

Philosophy of Practical Medicine—James Graham, Ohio; laid over.

On some of the Peculiarities of the North Pacific and their Relations to Climate—William H. Doughty, Georgia; absent.

On the Microscope—John C. Dalton, Jr., N. Y., David Hutchinson, Ind., A. Y. Stout, Cal., Calvin Ellis, Mass., Christopher Johnston, Md.; report next year.

Dr. Dalton, Chairman of this Committee, tendered his resignation by letter; accepted, and the Committee discharged.

Diseases and Mortality of Boarding Schools—C. P. Mattingly, Ky., Dixi Crosby, N. H.—reported progress; referred to its proper section.

On various Surgical Operations for Relief of Defective Vision—M. A. Pallen, Mo., T. J. Cogley, Ind., W. Hunt, Penn.; laid over.

On the Blood Corpuscle—W. Sager, Michigan; referred to proper section, with additional time.

American Medical Necrology—C. C. Cox, Md. Report was ordered to be read before the Convention, Thursday; amended to have Dr. Cox retained as Chairman and report next year.

Effects of the Virus of the Rattlesnake, when introduced into the System of Mammalia—A. S. Payne, Va.; reported progress and was discharged.

Constitutional Origin of Local Diseases, and the Local Origin of Constitutional Diseases—W. H. McKee, N. C.; C. F. Heywood, N. Y.; laid over.

Subcutaneous Injections as Remedials—I. Langer, Iowa; not allowed to report, not being an accepted delegate.

Quarantine—D. D. Clark, Pa.; E. M. Snow, R. I.; W. Jewell, Pa.; E. D. Fenner, La.; I. W. Houck, Md.; asked to be continued. Agreed to.

Medical Ethics—B. F. Schenck, Pa., Chairman. Resigned, and asked that Dr. Paul F. Eve, of Tenn., be substituted; agreed to. Report next year.

Tracheotomy in Membranous Croup—A. V. Dougherty, N. J. Partial report; this was accepted, and referred to the Surgical Section. Further time allowed to make out the report.

Effect of Perineal Operations for Urinary Calculi upon Procreation in the male; J. S. White, Tenn. Letter from Dr. White read; laid over.

Mercurial Fumigation in Syphilis—D. W. Yandell, Ky.; laid over.

Cause and Increase of Crime—W. C. Snead, Ky.; asked to be continued. Agreed to.

Education of Imbecile and Idiotic Children—H. P. Ayers, Indiana. Report offered; referred to the proper Section.

Report of Committee on Medical Literature, referred to Committee on Publication; accepted without reading.

Pons Varolii—Partial report. The Committee wished to be continued; agreed to. Referred to the Section on Anatomy.

Afternoon Session.

The Convention was called to order by the Chairman at 3 o'clock.

According to the resolution carried the day previous, the Convention adjourned to the various Sections.

Third Day—Thursday.

The Convention was called to order at 9 o'clock—the President, Eli Ives, M.D., of Conn., in the chair.

Dr. Shattuck moved a suspension of the rules for the purpose of introducing two resolutions; carried.

Dr. Bowditch reported the following resolutions on the Hunter memorial to be erected in Westminster Abbey; accepted.

Resolved, That it be recommended to the different States to collect subscriptions, of not more than one dollar each, from every regularly educated physician. All moneys so collected to be forwarded by the Chairman of the Committee here, by appointment, to the Treasurer of the Hunter memorial in London.

Resolved, That Drs. Henry I. Bowditch, of Mass.; Amos Nourse, of Maine; G. B. Twitchell, of N. H.; C. Clark, of Vermont; G. L. Collins, of R. I.; Chas. Hooker of Conn., and many others, be a committee to collect subscriptions.

Resolutions adopted as a whole.

Moved that a copy of these resolutions be sent to all regular Medical Colleges in the country; carried.

Report of the committee appointed to confer with the American Medical Teachers' Convention. The resolutions were discussed at some length by Drs. Flint of N.Y., Shattuck of Mass., McDowell of Mo., Atlee of Penn., Brodie of Mich., Palmer of Mich., and Morse of Maine.

The whole report was adopted and referred to Com. of Publication.

Committee on Nominations reported—

Committee on Medical Literature:

Frank H. Hamilton, New York; Edward Warren, Md.; Charles A. Lee, New York; W. C. Ely, R. I.; E. H. Clarke, Mass.

Committee on Medical Education—

L. S. Sayres, Va; C. C. Cox, Md.; I. C. Bradbury, Me.; L. H. Steiner, Md.; M. A. Pallen, Missouri.

Surgical Treatment of Stricture of the Urethra—James Bryan, Pa.

Drainage and Sewerage of Large Cities—A. I. Semmes, La.; C. Boyle, Ga.; W. C. Dove, District of Columbia.

Puerperal Tetanus: Statistics, Pathology and Treatment—D. L. McGugin, Iowa.

Anæmia and Chlorosis—H. P. Ayer, Ind.

Alcohol and its Relations to Man—I. W. Dunbar, Md.

Milk Sickness—Robert Thompson, Ohio; S. M. Bemiss, Ky.

On the Effect of Perineal Operations for Urinary Calculi upon Procreation in the Male—I. S. White, Tenn.; J. B. McCaw, Va.; R. C. Foster, Tenn.

Mercurial Fumigations in Syphilis—I. W. Yandell, Ky.

Cause and Increase of Crime—W. C. Snead.

Resolution made and accepted that a seal of this Society be given to every Medical College in good standing, and withdraw it upon evidence.

AFTERNOON SESSION.

The Association was called to order by the First Vice-President.

The President requested the Committee on the Hunter Memorial to retire for private business.

Report of Committee on Medical Topography and Epidemic Diseases referred to the Committee on Publication.

Committee on Hospital Epidemics discharged.

Committee on Puerperal Fevers discharged.

Committee on Veratrum Viride discharged.

Committee on Improvements in Surgery referred to the Section on Surgery.

Committee on Inebriate Asylums referred to Committee on Publication.

The President called for a report of each of the Sections.

1st. Anatomy and Physiology; referred to Committee on Publication.

2d. Practical Medicine and Obstetrics; report adopted.

3d. Section on Surgery; report adopted.

4th. Meteorology; report adopted and referred to the Committee on Publication.

Resolutions from the Essex County Medical Society of New Jersey were offered and adopted.

Moved that a special Committee be appointed to confer with the different Legislatures on the subject of the resolutions.

Motion made and carried that Dr. Cox be continued on the Committee on Necrology.

Report of the Committee on Tracheotomy was read; adopted. Referred back to Committee, to continue and report next year.

A communication from the Judiciary Committee of the Connecticut Legislature was read, asking that a committee be appointed to report a bill upon the subject of Criminal Abortion, for action at the next session; carried.

The Chair will appoint a committee in due time.

Moved that the American Medical Teachers' Convention be perpetuated in connection with the American Medical Association, and delegates appointed to meet from each Medical School, the day before the American Medical Association, at the same place.

Amended to "meet regularly," instead of being perpetuated; carried.

Moved that the Committee of last year on this subject be continued.

Moved by Dr. Atlee that the Hunterian Committee be empowered to fill all vacancies in it; carried.

Communication from Elmira, N. Y., read. Referred to Surgical Section.

Moved and carried, that a vote of thanks be offered to Dr. Bemiss for his efficient services as Secretary. Amended by substituting "Retiring Officers."

Resolution offered of thanks from this Association to the Faculty of Yale College, and to the citizens of New Haven, for their elegant hospitalities and kindness during its stay here; carried unanimously.

Dr. Hooker spoke to the Convention in regard to commutation tickets.

Moved that the Convention go into Committee of the Whole; carried. Dr. Askew in the Chair.

A discussion was called up in regard to the Resolutions of Committee on Education, Dr. Reese, Chairman.

Dr. Gardiner moved the Committee rise, report progress, and refer the resolutions entire to the Committee on Publication.

Dr. Hamilton, of Brooklyn, offered a resolution for a bill for the establishment of a College of Physicians and Surgeons of American Medical Association. Discussed by Drs. Hamilton, Gardiner and others. Resolution withdrawn.

Dr. Dixi Crosby addressed the Convention as to its general action.

Motion made that the Convention adjourn *sine die*. Carried.

EDITORIAL AND MISCELLANEOUS.

— *American Medical Association.*—The Thirteenth Annual Meeting of the Association, which was held during the first week of last month, cannot be considered as offering in its results any strong evidence of a lengthened existence. We should hesitate to say this, had we not a word to say in defence of the present condition of the Association.

Previous volumes of the Transactions have been ponderously voluminous, but not always for reason of the great value of the papers they contained. The forthcoming volume will be small. There will be no prize essay, few papers, and scarcely a report. A judgment, ripened by the experience of a decade of years, and a change—for the better, we believe—in the working of the Association, has finally resulted in the more critical survey of papers and the assumption of responsibility as regards publication by the Association, after a rec-

ommendation by the Section before which they may have been read. A smaller volume is therefore one of the first fruits of the present organization into Sections.

The plan is new, and should not be criticised as the working of an old institution. We believe, however, that the new organization will be found to be the best, after a fair trial has been made of it; and while we state our present disappointment in modest terms, we have a faith in the future action of the Association which is founded upon a belief in the wisdom of its organization.

The subject of Medical Education, which occupied the greater part of the time of the Association, was left precisely where it was taken up, the report of the Committee being simply accepted and ordered to be printed.

— The present number commences the Fourteenth Volume of the MONTHLY. In accordance with our design announced in the April number, we add to our former title that of NEW YORK REVIEW. No other change has taken place in the conduct of the journal. The editorial corps remains the same. We shall try to do our duty to our subscribers and to the profession at large, and look to our old and our new friends for that *true* support which encourages labor.

— *The American Medical Times* is the title of a new weekly which commences its regular issue with the seventh of July. The announcement states that it is a continuation in a weekly series of the *New York Journal of Medicine*, which has appeared for seventeen years, in a quarto form, every second month. The new journal is in appearance and arrangement a close imitation of the *London Medical Times and Gazette*. It is typographically neat, and gives every indication of being a weekly journal in every respect worthy of the abundant resources which New York furnishes to the medical student, whether in or out of the academic walls. Its editorial corps consists of Drs. STEPHEN SMITH, ELISHA HARRIS, and GEORGE F. SHRADY, all of whom are well known to those who have been at all familiar with the pages of the *New York Journal of Medicine* for many years past. The price of the new journal is $3.50 to city subscribers, and $3.00 when sent by mail.

— *Large Ovarian Cyst.*—Dr. Peaslee, on the 15th ult., removed *one hundred and fifteen pounds* of fluid from a single ovarian cyst, by tapping. The patient is a young lady twenty years of age, and her circumference before the operation was *five feet and one-half*, (sixty-six inches.)